

MEMOIRS

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NEWTON

I PASSED THIS WAY

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R.N.

I P A S S E D T H I S W A Y

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R O B E R T N E W T O N

"We spend our years as a tale that is told"

T O

M Y W I F E

Staunch Comrade of Fifty Years

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"BOIS POURRI"

No sound is more closely associated with the days of my youth than the plaintive cry of the Whip-Poor-Will. So often in the summer evening twilight it evoked even then a vague yearning for the day that was gone. How much more as I look back now over more than three score years and ten! The French-Canadians call the bird Bois Pourri, a name that resembles the sound of its call more than Whip-Poor-Will. The literal meaning of the French also suggests something that is dissolving into its original elements. Memories are all that remain of one's earliest experiences. But from them can be reconstructed living pictures of the past. As I penned these recollections, I realized that nothing we have known is ever really forgotten. Our minds are full of latent images, needing only the right stimulus to develop them afresh. One image brings up another, till our screen is overcrowded and we scarcely know where to begin or where to end our script. Of later experiences, from my university course onwards, I have at least partial records to fortify my memory, and so am embarrassed with a still greater wealth of material. I can but select what impressed or amused me most, leaving the reader to do his own further winnowing.

A word of warning: Since this book is simply a running commentary on my experiences during a lifetime, the reader must not expect to find any plot, much less that unity and coherence proper in a novel or formal drama. On a long walk one may enjoy the many people and things he sees without burdening himself to remember them or to relate them to one another. That, I hope, may be the experience of my readers. I should like to

share with them some of the interest and pleasure I found in telling of the people, places, and events that made an impact on me as I PASSED THIS WAY.

Chapter I

"IN THE BEGINNING"

Family

In older and more sophisticated cultures it seems to be customary to cultivate family trees. In the Bible itself whole chapters are taken up with long genealogies. Perhaps it is Canada's newness that induces its children to look forward rather than backward. At any rate I took little interest in my forebears till it was too late to question those who might have informed me. My background must perforce remain sketchy.

My father was the youngest of three sons — Robert, Charles, and John — born to Samuel Newton and Phoebe Dawson at "Lyne Edge Farm", Dukinfield, near Manchester, England. His mother died soon after his birth, and he was brought up by one of her unmarried sisters, his Aunt Mary, evidently very tenderly, as he always revered her. Another sister, Jane Dawson, was governess to the family of M. Moreau, saddle-maker to the Emperor Napoleon III. During the First World War I visited Étienne Moreau, one of her protégés of a half-century earlier, at the old family home in the Rue du Faubourg St. Honoré, Paris. The cordiality of his reception testified to the respect in which her memory was held. One of our family keepsakes is a letter she wrote on October 20, 1870, to her sisters in Stalybridge, England. This was during the siege of Paris by the Germans, and the letter bears not only the usual Paris postmark but is also inscribed on the face, Par ballon monté. It is of interest as a prototype of the modern air letter, which indeed it resembles, being written on thin paper with no separate envelope.

My Uncle Robert was ten years older than my father, and remained unmarried. After early apprenticeship as a machinist, he soon became a founding partner in what grew into a substantial engineering business in Stalybridge. Locomotives were its largest product, but his main industrial contribution was the introduction of wirenails to that part of the world. These soon relegated to museums the older cut or forged product. Having worked extremely hard in his youth, he retired to Southport at age 50, except for attending directors' meetings in a few companies. He lived to a ripe old age, hugely enjoying his semi-idleness right to the end.

The second brother, Charles, I never met, but my father described him as a very talented musician, who "could play every instrument in the band." This apparently was his undoing. Those were days of keen rivalries between community bands, and Charles undermined his health by too many late nights, succumbing at last to pneumonia contracted by marching in the rain. He left two young sons, who inherited some of their father's musical talent, but indulged it more moderately. Their devoted mother had a struggle to raise them singlehanded, but made a good job of it. Only one of them married. He left one son, who is now a leading gynaecologist in Manchester.

My father, John, was inspired by his Sunday-School teacher, Mr. John O. Kerfoot, at Dukinfield Old Chapel (Unitarian), to become something more than a tally clerk in a Stalybridge cotton mill. Mr. Kerfoot was also his employer, and had noticed my father reading a mathematical textbook during the slack intervals while he was waiting for shipments to check and weigh, and

encouraged him to take evening classes. He did so, evidently to some purpose, in the local Mechanics' Institute, and then at Owen's College (later Victoria University), Manchester. Our early home library was largely stocked with his prize books, a number of them inscribed "Queen's Prize". Apparently he completed the course, entirely through evening classes, for the B.A. in chemistry. But just then his health failed, hardly surprising in view of the strenuous combination of day and night work he had carried for years, and he decided to fulfil a secret yearning to go farming in Canada.

Arrived here, he found employment with a farmer near Grenville, on the Quebec side of the Ottawa valley, and also worked on the canal then building there. It was here that he met my mother, who happened to visit the family with whom he was living. With health renewed, and marriage an objective, he realized he must find more profitable employment, and repaired to Montreal. He took with him as references his various educational certificates and prize records, and showed them to, among others, Mr. James Esplin, of G. & J. Esplin, box manufacturers and lumber merchants. Mr. Esplin recognized their promise and employed him at once. Now history was to repeat itself. Mr. Esplin, who had appointed him shipper, noticed my father still pursuing his desire for greater mastery of mathematics during intervals between shipments, and promoted him to be bookkeeper, promising, when my father protested he had no experience in that line, to instruct him personally at the outset. That was not to be the limit of my father's progress, for he advanced rapidly to the position of manager in five years.

Thus began a lifetime association, broken at intervals by my father's persistent urge to farm.

My mother, Elizabeth, was the eldest daughter of William Brown and Margaret Calder. William Brown's father, David, migrated from Hull, Yorkshire, to the Township of Chatham, just west of Lachute, Quebec, in the County of Argenteuil. He met an untimely end in 1829, when he slipped off the front end of a "sloop" load of grain and the oxen pulled it over him. His son William was then only five years old, and was brought up as William Dunn by a family of that name. At maturity he resumed his own name, and about 1845 married Janet McPhail, who died in 1849, leaving two infant sons, David and Duncan. Ten years later he married Margaret Calder, the ceremony being performed by the Rev. John King, in Chatham, Lower Canada, 19 September, 1859.

James Calder, Margaret's father, had incurred the displeasure of his genteel family by marrying in 1817 Elizabeth MacFarlane, a working girl employed in Coat's thread works in Paisley, Scotland. This may have influenced his later decision to migrate to Canada, though it seems likely one of the periodic slumps in the textile industry was a more compelling factor, for he was accompanied by his brother John and the young families both had begun to raise, while the next year his sister, Mrs. Patrick Gilmour, with her husband and four children, followed them.

It was in 1827 that the Calder brothers and their families embarked on a sailing ship for Montreal. From there they travelled by ox-cart to Lachute, and settled first on nearby

farmland on the North River. They had been silk weavers by experience, ill-prepared for the rigours of pioneer farming, yet for some reason they soon moved right into the unsettled wilds of the Township of Chatham, where conditions would appear to have been more difficult and the soil agriculturally inferior to that around Lachute. They located in Range 8, that is, some eight miles north of the Ottawa River, and were joined there by the Gilmours. This district was later called Mount Maple, a post-office of that name being established in 1881.

In the move from Lachute to Chatham, James Calder and his two older boys, John and Robert, aged about 13 and 10 years, went in ahead, cleared about an acre of land, and built a shack. Then he brought in his wife and the two younger children, - Elizabeth, 6, and James, 1. There Margaret, my grandmother, was born in 1833.

James, the head of the Calder family, had evidently heard in Scotland exaggerated tales of the warlike Red Indians of Canada. The first time he met one happened to be in the deep woods as he was carrying home on his shoulder a quarter of beef. However sorely needed and laboriously transported was this provision, so strong was his impulse to placate the bloodthirsty savage that he forthwith proffered it to the astonished Indian. What his wife said on his arrival home minus the beef is not recorded.

Why these early settlers chose to farm the sandy, stony soil of Mount Maple, so inhospitable to agriculture, we can only surmise. Was it their sheer inexperience? Or merely its convenience of access from their port of entry? Did it remind them of the Scottish hills from which so many of them came?

Were they dazzled by the glory that is a maple woods in autumn? Whatever the answers, some of the next generation found them unsatisfying, and moved further up the Ottawa valley to the heavier soils of districts like Plaisance, where my father later took us. On our road we had Calders, Gunns, Moores, and Moncrieffs. But the pull of the old home remained strong, and in the evening of life some moved back again to the Township of Chatham.

My first glimpse of the old homestead at Mount Maple came when I was seven years old. My grandmother and I took the train from Plaisance to St. Philippe, and walked some $2\frac{1}{2}$ miles north to Brownsburg, where we visited her newly married daughter Janet (Aunt Jennie to us). Next day we walked the $4\frac{1}{2}$ miles further to Mount Maple, where we visited overnight with my grandmother's sister-in-law Johanna (Heatley) Calder, and the latter's daughter, Lily. Johanna's husband, James Calder Jr., had died a few months before. We also visited my grandmother's older sister, Elizabeth, at the site of the old home. It is a beautiful and attractive countryside, however ill-suited to profitable agriculture.

Incidentally, my Aunt Jennie's wedding, in my grandmother's home at Plaisance, had been perhaps more notable for hilarity than for solemnity. The regular minister was not available, and a Rev. Saint Senne was brought in for the occasion. His name being phonetically identical with cinq cents (five cents), it had been the subject of some advance merriment. Then the poor man became confused because our Uncle Wille Brown, whose sole function was to answer the question, "who giveth this woman in marriage?" failed to step back discreetly afterwards. He continued standing next to his sister, the bride, and the minister continued to direct all questions to him. The real bridegroom

Harry Moseley, had no little difficulty in asserting his rights and responsibilities. My sister Margaret and I had gathered a large bunch of trilliums for the occasion, on our way home from school, and were given places in the line-up as flower girl and page boy. We were too young to hide our emotions, and the groom's younger brother, who was best man, did not help any with his visibly shaking shoulders. In the circumstances it is a pleasure to record that the marriage proved thoroughly solid and successful.

Plaisance and North Nation Mills

Soon after my Grandfather Brown married Margaret Calder, he brought his bride to his lately acquired farm, a half-mile north of the village of Plaisance, on the road leading to North Nation Mills. My mother, the eldest of their seven children, had been born at Mount Maple before the move.

Records of this 35-year period are scant. Among the few remaining documents is a mortgage dated 9 June, 1879, when my grandfather borrowed \$300 from three brothers named St. Julien. The interest rate specified was 12 per cent. per annum. Small wonder that my grandmother habitually referred to interest in those days as usury! The mortgage also indicates that the adjoining farm was owned by William Smith, presumably English-speaking. An extract from the Canada Gazette of March 24, 1860, shows that three out of five Commissioners for Summary Trials in that district had English names. This is a district that, like most of Quebec Province, gradually became solidly French.

Ten years after my own parents' marriage, my grandfather, having attained the age of 70 years, decided to retire from

farming. My father took over the farm by purchase in 1894, and for a period of three years had his first real fling at farming. Twice more he tried it, for a few years each time, but always fell back on the old firm in Montreal to recoup his finances. Of course this intermittency interfered with his seniority, especially after both the Esplins had died and new Pharaohs had taken over. Eventually he had to be content with the position of book-keeper. He had a generous spirit and no false pride. If he was ever irked by seeing men he himself had originally engaged as office boys now occupying positions senior to his own, at least he gave no sign. My father had indeed a strong vein of idealism in his nature. I remember walking one Sunday morning to church, the while he argued strongly for the essential goodness of man, whose natural instinct was to do right rather than wrong.

Plaisance was in the county of Labelle, which on its east side adjoined Argenteuil. Long afterwards, Labelle was divided into two counties, the south half, in which we lived, becoming the county of Papineau. We were in the Papineau Seigniory, and paid nominal rentals to the old Seigneur until the system was finally abolished. The Seigneur was always hospitable, and welcomed us to use his spacious grounds in Montebello for picnics. The imposing "chateau" and the associated museum were items of interest.

All but one of the five children who survived to my parents were born in Montreal. But we always regarded the farm as home, spent all our holidays there, and imbibed the rich influence of the country. All my life I have profited from the independence,

initiative, and adaptability naturally acquired by farm children. Farmers are the original do-it-yourselfers. No matter what needed doing, we just turned to and did it. There were of course neighbours to call upon when the job was beyond the capacity of one family. Neighbourhood "bees" were fairly common, and were the occasion of much incidental jollity and feasting. Juvenile delinquency had not yet been invented. Anyway it could not flourish in that environment. We were all too busy with farm chores to fall into the manifold temptations that beset idle hands. It is the big cities that spawn youthful delinquents, and the remedy there is the same as in the country, namely, to keep youngsters busy at interesting occupations. Unplanned and unoccupied leisure is bad for old and young alike.

The practice of giving responsible jobs to farm youngsters might have had serious results for me in one instance. We had a team of black horses named Prince and Queen. Prince was big, strong, and relatively stolid in disposition. Queen was smaller, but high-spirited, and never let Prince get an inch ahead of her, however heavy the pulling. At the time of this incident she was going on three years of age and due for her first shoeing. Winter had come, and both were to be sharp-shod in readiness for possible icy conditions. I, going on six years, eagerly volunteered to lead one of them to the blacksmith shop in the village a half-mile away. My father was afraid Prince might step on me with his clumsy big feet, and gave me the daintily stepping Queen. All went well till we approached the village and the engine of a freight train in the siding whistled and began to ring and puff loudly. Queen, unused to such monstrosities, took fright. What

happened next I never rightly knew, except that I was picked up out of the snow-filled ditch in a dazed condition by Mr. Robert Calder, a ^{second} cousin of my ~~grand~~mother, who drove me in his burleau to my mother's care. My face bore the imprint of Queen's hoof, mercifully still unshod, but the only real damage was a split lower lip, which soon healed.

On that occasion I had at least the compensation of finding myself something of a hero, with genuine sympathy for my fate. This contrasted with an earlier occasion, when I had to be rescued in tears from the ministrations of a butting ram, who refused to let me stand upright in his presence. That time my discomfiture evoked more merriment than sympathy, and my injured feelings were only partly assuaged by my mother's explanation that the ram was only protecting his flock and really meant no harm.

Any risk of recurrence soon disappeared as, like many of our neighbours, we went out of sheep raising. While the immediate reason was the difficulty of fencing them in, and the continual need of herding them out of grain crops and other places where they had no legitimate business, the deeper underlying reason was the increasing availability and convenience of factory goods. James Calder, my great-grandfather, wrote in his diary (of which, alas, only a fragment remains), under date of "Friday, 15 Jany 1858 - Yesterday Margaret (his daughter, my grandmother) finished wooling web warp 40 yards but cloth 2 3/4 less." His shorthand is fairly decipherable, though what processes he included under the term "wooling" I can only guess. But in my childhood I have seen this same grandmother wash fleeces,

then card, spin, and weave them. In her young days they had no other way of clothing themselves. But I had not grown much older before the spinning wheel was stored in the attic, and the only use of the loom was to make rag carpets. Home crafts no doubt persisted in a small way in eastern Canada, but it was not until the second quarter of the 20th century that they were revived throughout the whole country as hobbies.

The self-sufficiency of the pioneers is further illustrated by this note in my great-grandfather's diary: "Wrote here ink made of shoe blacken - soft maple bark makes best ink of all."

My father's intellectual and scientific bent made him an avid student of Experimental Farm reports and bulletins. He was always trying recommended crop varieties and practices. He it was who introduced into that district systematic crop rotation, the liberal use of red clover, the trap-nesting of hens, the weighing and recording of milk from each cow, - practices which in time revolutionized the local agriculture. In all this he was ably seconded by my mother, herself a child of the soil, knowing well its rewards and its exactions. She was a "green thumb" gardener, and excellent cook and housekeeper, a skilled seamstress, an understanding mother, and she outdid even my father in attachment to country life. Perhaps not unnaturally they both rated their greatest contribution to be their five children, three sons and two daughters, all so thoroughly imbued with the spirit and love of the soil that they devoted their lives to research and teaching in agriculture.

Oddly enough, my father was at first lukewarm about higher education for his family. This was because he felt his own long

struggle to get it had not done him much practical good. The information he used on the farm was what he read in agricultural reports rather than in his textbooks of mathematics, physics, and chemistry. Also these sciences seemed to have little application to his business in Montreal. But his love of learning was innate, and he regained his old enthusiasm as he went along.

We were a closely knit family, and as one after another left home we formed the habit of writing home on Sundays. These "family letters" were circulated to members of the family outside the parental home, a practice which survives to this day, more than thirty years after our parents' decease.

A piano in the home was a natural focus of family relaxation. My elder sister, Margaret, early acquired enough proficiency to accompany hymns and simple songs. Neither parent had any musical training, but my mother had a strong, clear soprano voice, and my father a pleasant baritone. In early years he sang in natural harmony with mother's hymns, but later, as his children grew older and learned to read music, his ^{native} ~~natural~~ shyness overcame him and he gave up singing in harmony. He was exceedingly fond of music, a characteristic I inherited, surprisingly enough, since in my case at least it was not accompanied by any special talent. However, I did manage to teach myself the violin well enough to play hymns both at home and in support of the organist at local church services. "Sacred Songs and Solos, Compiled and Sung by Ira D. Sankey," was the hymnbook then in use. It contained many fine old dignified hymns, as well as lively revivalist tunes. In early

days, too, my father and mother often sang in the home some of the old English and Scottish ballads. I remember especially "When ye gang awa, Jamie," in which "Jamie" and "Jeanie", represented by my father and mother, sang alternate verses throughout its length.

My elder sister and I began our schooling in the traditional "little red schoolhouse" at North Nation Mills, some three miles north of Plaisance. She was seven years old and I five, and there we attended during the four years of my father's first farming venture. The Laurentian hamlet of N. N. Mills had been established by the W. C. Edwards Lumber Company, - always referred to locally as "the Concern", - to support a water-driven sawmill. The rail^{way}~~road~~ station at Plaisance was actually called North Nation Mills during the first part of our sojourn there, the latter having been originally a much more important centre.

The village of North Nation Mills had a setting of incomparable beauty, in the steep, wandering valley of the North Nation River, now shown on the map of Quebec as La Petite Nation. What used to be called the South Nation, on the opposite bank of the Ottawa, has become simply the Nation River. My mother used to tell how she and her sisters and brothers found an easy way to come part way home from the same schoolhouse, by placing two newly sawn planks one atop the other, then riding them along the mile-long "slide" (a large wooden conduit) built to float them gently past the series of falls and rapids, the uppermost of which powered the mill.

The mill had fallen into disuse by the time my sister and I started school, and only the first half-mile of the slide was

still used in spring and early summer to float the "drive" of logs from higher up the river past the main series of falls. We sometimes walked home by the river valley route (instead of along the more prosaic highway) and stopped to enjoy the mighty splashes of the logs as they dropped some forty feet from the end of the shortened slide into the deep pool below.

A few miles further north was another series of cataracts, where the river had worn a secondary, smaller channel round a huge rocky islet. This secondary channel was the site of another slide, carrying the logs past the main falls, and because the logs described a U-turn before entering the rapids below, the whole area was known as the Round Slide. It was a deservedly popular place for picnics.

The log drives in spring and early summer were popular with us boys. By the time they reached the quiet waters near the confluence with the Ottawa, where they were rafted for towing to the mills at Rockland, they were served by a small house-boat, housing and feeding the drivers. (Over the upper reaches of the river they had lived in tents.) There were always pike-poles around, and we could play at sorting and rafting the logs, running over the logs and rolling them in approved fashion. But where the drivers used corked^(spiked) boots, we did it with our bare feet. The cook was always kindly and generous, and our healthy young appetites relished his liberal helpings of baked beans and raisin pie.

The lowest reach of the river was flanked by a Concern farm, known as the Plaisance Farm, and the main store in the village of Plaisance was also owned and operated by the Concern.

These were of special significance to us, because the store-keeping family was English-speaking, and the farmhouse was occupied during the summer months by an English family from Ottawa, whither the Concern's senior officials gradually removed. These two families with plenty of children notably increased our social contacts.

The schoolhouse at the "Mills" was situated on the east rim of the valley, overlooking the hamlet. It commanded a scene of surpassing beauty which it took maturer years to appreciate fully. Not only the winding river, the village, and the upper falls, - spanned by a wooden bridge and dam formerly serving as power storage, - were seen from the school, but also a considerable vista up the west bank to a fertile farming district known as the Gore of Lochaber, so named by the early Scottish settlers. As children we thought mainly of the rich variety of adventure offered by this setting. Dangerous waters and parental injunctions notwithstanding, we still haunted the river in summer. In winter there were unlimited opportunities for sledding, especially down the long, winding hill road which gave access to the village. The village itself consisted of a store, including post-office and an office for company officials, a hangar, - as a storehouse was called before air lines appropriated that name, - a dairy, a blacksmith shop, and a few houses, all owned by the Concern. What had been a large boarding-house on the west bank was slid across the ice above the falls one winter to become a bigger and better store. Above the valley, on the east bank, and bounded west and north by the curving river, was the main

Concern farm, completing the establishment meant to house, feed, and administer the company's extensive lumbering interests along the length of the North Nation River. A road along the east rim of the valley separated the cultivated part of the farm from the still heavily forested valley.

In the long vista of time these are but fleeting images. A half-century later not a building was left in North Nation Mills. The bridge and dam had gone. Nature had taken back her own. From the site of the schoolhouse not even the beautiful river valley could be seen, only a green wall of trees. The valley side of the river road around the Concern farm had been stripped of its lordly pines. But man had not been entirely ruthless or improvident. A substantial plantation of new pines blanketed much of the sandy slope at the north end of the farm. And many patriarchal trees survived on the sandy knolls which had been the scene of the annual community picnics of the English-speaking inhabitants.

In our early days, the French inhabitants of the Mills mostly sent their children to the school there, rather than have them trudge over three miles to Plaisance. At the Mills the teaching was in English, but playtime was bilingual. There, and in contact with our neighbours, the seeds of bilingualism were planted in us. If we had stayed longer, we might have emulated my mother, who spoke French without an accent, something that can be achieved only by growing up with it. Even in the four years we were there we should have made more progress but for the native reticence that handicaps most Anglo-Saxons in learning a foreign language. When a Frenchman learns one English

phrase he will use it on every occasion till he adds a second, and so on, building up rapidly by constant practice. The University of western Ontario used to hold a French summer school for English students at Trois Pistoles, Quebec. This got on famously until the administration conceived the idea of making it bilingual, on the theory that French students would learn from English students, and vice versa. What happened was that the French students got most of the practice, while the English students talked mainly English. Even the French-speaking mail driver between Plaisance and the Mills, with whom my parents arranged for us to drive to school in the mornings, profited by his association with us children, practising and enlarging his limited vocabulary, and seldom failing to sing the one English song he knew, "Blow, the windy morning." The theme was quite appropriate on many cold winter mornings!

The mingling of the races was good for us. The idea of racial tolerance, of course, never occurred to us, as children have no racial prejudices. Neither have they religious prejudices. Sunday services in the schoolhouse at the Mills were conducted mainly by the Baptist denomination, but were attended indiscriminately by all Protestants within a radius of several miles. Ministers of other denominations also conducted services there occasionally, and were equally welcome. In course of time (1913) a separate building for church services was constructed cooperatively on the same grounds as the school, but with more comfortable seating for adults. But it had a short history, as the English-speaking community dwindled to a point where a congregation could no longer be mustered. This sort of thing has happened in many

parts of Quebec, - la revanche du berceau!

More than a word of tribute is due the Baptist ministers who conducted most of the services at the Mills. In addition to their other pastoral duties, these faithful, overworked men usually preached three times each Sunday: at Ste Amédée in the morning, at North Nation Mills in the afternoon, and at Papineauville (where they lived) in the evening. This involved a round trip of over twenty miles, nothing in this modern age of motor cars and paved highways, but really something in those days of horse-drawn transport over ill-maintained roads in all weathers. All this for a salary of \$200. a year, plus occasional contributions of farm produce and wood fuel. Of course, the purchasing power of the dollar was then several times what it is today. For example, eggs could be bought in summer at nine cents a dozen and butter at fifteen cents a pound, direct from farmers. When the minister's stipend was eventually raised to \$300. a year, many parishioners thought this munificent!

When our family returned to Montreal in 1898, we continued our education in religious tolerance. Sunday mornings we attended the First Baptist Church, then at the corner of Ste Catherine and City Councillor streets, where we trembled sometimes as Rev. J.A. Gordon rolled out the thunders of Sinai; and Sunday evenings often the Church of the Messiah (Unitarian), then on Beaver Hall Hill, where we basked in the gentle, polished oratory of Dr. Barnes. For good measure, during our first year in Montreal, my mother, thinking us too small to trudge in the afternoon a second time the long distance to the First Baptist, enrolled us in the nearby St. Mark's Sunday-School. This being

Presbyterian, we were inducted into the mysteries of the Shorter Catechism, an altogether profitable experience. With such catholicity in our background, we needed no conditioning to church union, when that idea was put forward years later.

We also continued to learn French, as that subject is regularly taught from the early grades of the Montreal Protestant Schools. The direct method of teaching French in French is used, but the English-speaking teachers in those days had something less than a perfect French accent. Fortunately we heard plenty of "French" French in the streets and public places, so that our ears became attuned to la mélodie française even if our imitation of it fell short. Later, in the Montreal High School, we had thoroughly competent French teachers. The importance of correct French teaching from a very early age cannot be overstressed. Sir Charles Saunders, the famous originator of Marquis wheat, made a hobby of French in his mature years, and I heard him exclaim once, "Apprendre une langue étrangère, c'est une tâche épouvantable!"

The practical advantages of bilingualism in a country with 40 per cent of its inhabitants French-speaking are obvious. Less obvious but equally important are the wider outlook which the mastery of a new language gives us. With an added channel of communication we can get a fresh view of the world through the speech and literature of the people whose language we have learned. In these days of shrinking distances, the more we understand our neighbours near and far the better will be our chances of getting along amicably together.

Another feature of the curriculum of the Montreal Protestant

schools for which I became increasingly grateful in maturity, was the inclusion of Scripture as a regular subject every year. In most public schools in Canada, and even more particularly in the United States, the separation of church and state is such an obsession that the Bible is totally excluded, even as literature. Thus the book that more than any other book has set the standard of good English is virtually on the Index Expurgatorius. We thoroughly enjoyed Scripture, and never thought of it as religious instruction, though it could hardly have failed to exert a good influence upon us. We found St. Paul's adventures as exciting as those of Robinson Crusoe, and when we got to the end of The Acts were not a little disappointed that his story did not go straight on into Romans. Those are the years when memory is most retentive, and when I left elementary school at age twelve I could unhesitatingly have drawn a map of any of St. Paul's missionary journeys, or recited long passages in the matchless idiom of the King James Version. That is a heritage from my schooling I should not like to forgo. I should add that Scripture was continued into high school, though on a reduced basis, as part of the course in English literature.

When my Grandfather Brown retired in 1894, he purchased a 6-acre lot adjoining the old homestead, and built himself a house there. I remember him as a kindly, blue-eyed, grey-bearded gentleman, who made much of me, his first grandson. He enjoyed his new leisure for only a few months. I remember his coming that afternoon to our house, complaining of a pain in his chest. My mother made him a hot peppermint drink, which brought temporary relief. But that evening after supper he slipped off his chair without warning, and was gone. The first snowflakes of the season were drifting down as, a few days later, the hearse drove off, while my mother and I and a nextdoor neighbour, Mme Pierre LaFlamme, watched through the window of his scarcely completed house. In December of that year my youngest brother, John Dawson, was born.

My grandmother, then only 61 years of age, lived another 30 years, cared for by one of her younger daughters, Rachel, who remained unmarried and also attained a great age, all but the last few years spent in the same spot. They were therefore our nextdoor neighbours during the periods we spent on the farm, and a hospitable holiday home for us children while we lived in Montreal.

On one occasion during such a holiday, my grandmother caused us great amusement by looking everywhere for her glasses, not realizing that she was already wearing two pairs pushed up above her forehead. She was surprised not to find them in their usual place on the shelf where the old clock stood. This clock was operated by a couple of weights which slowly descended and were lifted to the top of their run once a week. As to the eye-glasses, my grandmother later discarded them altogether, and continued to read the fine print of "The Montreal Weekly Witness" and "The Lachute Watchman" by the light of a small lamp turned low to conserve the oil. So deeply ingrained was the habit of thrift that she continued such practices long after the need for rigid economy had passed. Right up to her ninetieth year she hoed her garden in bare feet, but whether the motive was economy or comfort I do not know.

My grandmother's older, unmarried sister, Elizabeth Calder, who remained in the ancestral home at Mount Maple, came to Plaisance for an extended visit with her widowed sister every summer. They both became increasingly hard of hearing with the years, and their conversations in broad Scottish accent, necessarily in a loud voice, were often a source of entertainment to us children. They had the deep interest in religion characteristic of the Scots, and had frequent arguments in this field. On one occasion my grand-aunt referred to the temptation of our Lord to make stones into bread. My grandmother, not hearing rightly, replied, "But ye canna make scones ~~(pronounced with long e)~~ into bread. There's no yayste (yeast) in scones." My grandmother's favourite story, which she recounted on every

appropriate occasion, had to do with a husking bee at Sandy Gunn's. It was traditional that a red ear of corn earned the finder the right to kiss the girl of his choice. This time some boys cheated by passing around a red ear of corn secretly. At length Sandy's patience was exhausted and he exclaimed, "Tut, tut, lads. Get along with the husking. There's a moderation in everything." We could always tell whither my grandmother was heading from the first word of this story, and began to laugh immoderately long before she reached the point. It was only in mature years that we fully appreciated the profound truth of Sandy Gunn's maxim.

Our pleasures were simple and our enjoyments sincere. There were occasional picnics in summer and parties in winter. Games of tag, hide-and-seek, and baseball used up our surplus energy at picnics. At the big annual community picnic, held at the north end of the Concern farm, foot-races of all descriptions were featured. They whetted our appetites for the generous supper served at long tables under patriarchal pine trees, with the still fragrant needles of yesteryear a brown, slippery carpet underfoot. Indoor games and parties were mostly of the action type, often with singing accompaniment. As we got a bit older we graduated to square dancing, and entered into this with great zest.

Our best "caller" at dances was George Moncrieff, a Scot with an Irish lilt in his voice, and a comparative newcomer from "down below", the expression he and his fellows used in referring to their quondam home district, the township of Chatham. It was down-river from us, and stretched northward from the river.

George added to his other qualifications a special aptitude for calling off square dances. His vigorous rhymes were matched by equally vigorous delivery, not unsuited to such couplets as, -

"Promenade all along the hall,
Kick your heels against the wall!"

I have seen some young swains do just that!

Sometimes we had only a mouth-organ for music, but more often a harmonium on which an elderly, witty Irish lady named Mrs. Donnelly pumped out "The Irish Washerwoman" and similar rhythms with great élan. In one home, that of Mr. and Mrs. George Cooke, we enjoyed first-class playing on a grand piano by their talented daughter, Myra. Occasionally Mr. Cooke played a fine old violin, which later came into my possession.

A few other homes, like our own, were possessed of upright pianos, and someone who could play well enough to accompany our songs. In these homes, part of a social evening was usually devoted to what is now called community singing, mostly of old favourites, some of them kept available by Beecham's Song Folios. Were the innocent-looking advertisements of Beecham's pills, and even songlets about them, in these folios the prototypes of singing commercials? Our repertory leaned strongly to Stephen Foster, a well-deserved and enduring preference. Sometimes a current hit was introduced, like "The Good Old Summer Time", but on the whole our tastes were conservatively "classical". Jazz and crooning were still mercifully unknown.

The annual "Christmas Tree" in the schoolhouse was always a high light. Every family brought gifts for its own children, and arranged them on or under the huge spruce tree which filled one end of the platform. There were also small sacks of candies

and nuts provided in common for all the children. An elaborately dressed Santa Claus entered at the critical moment, with a great ringing of sleigh-bells around his waist, and distributed the gifts to the wide-eyed children. He enlivened this lengthy proceeding with jokes and comments directed to each child, delighting our uncritical ears. Watchful parents and a kind Providence protected us from the serious fire hazard presented by the dozens of flickering candles wired to the branches of the tree. The tree ceremony was preceded by a few simple entertainment numbers, - songs, recitations, dialogues, - and of course was succeeded by refreshments. These were always substantial, - homemade cakes, cookies, ice-cream, and so on, - and sent us away full and satisfied. Making the ice-cream beforehand was for us children an attractive procedure. There was no lack of willing hands to turn the crank of the freezer, and if a little salt from the ice-salt mixture in the jacket sometimes spilled over into the cream, what of it! Made of real cream, not a modern synthetic mix, it still went down well at the party. The chorus of jingling sleigh-bells echoing through the frosty air as we drove off homewards is still fresh in memory. Our vehicle was commonly a traîne, a low sleigh in which we squatted in a bed of straw under an ample buffalo robe. It was drawn by one horse, in shafts offset so that he could trot in the left-hand sleigh track.

This community party took place a few days before Christmas, and did not interfere with our family Christmas tree celebration on Christmas eve. Selecting and bringing home the tree was an

important feature. All the younger members turned out, with a team of horses and sleigh to break a road through the snow to the wooded area at the back of the farm. Having agreed on a tree symmetrical and perfect enough to satisfy all present, it was cut and brought home with as much ceremony and jollity as the traditional Yule log. In the evening my father, - or in later years myself or my brother William, - played the role of Santa Claus. At the climax the living-room was a confusion of discarded wrappings and a babel of delighted exclamations. For this occasion and a few other very special ones, my father made a supply of butterscotch, his most notable culinary triumph. He had plenty of willing helpers when the time came to assess the completion of the process, by spooning samples on to a plate of snow to see whether they set to the right consistency. This could be verified most satisfactorily by eating the samples!

We made our own Christmas decorations, mainly of coloured paper chains, each link laboriously^{fashioned}/from strips cut with scissors and glued with starch paste, also homemade. Several evenings of work as a family went into these chains, and the resulting festoons undoubtedly gave us more satisfaction than the modern tinsel too easily acquired to be fully appreciated. Parenthetically, in our earliest days the kitchen was usually festooned in the fall with strings of drying apple rings and bunches of herbs for cookery. These, too, gave place to store-bought "evaporated" fruits, and herbal savories in packets or tins.

Before the long winter ended there was usually one more "social" or "entertainment" in the schoolhouse. These had more elaborate programmes, sometimes including a playlet, and always

a chorus whose repertory was often limited to hymns. It was the fashion to have a chairman, usually the minister, introduce each number, and the poor man was also expected to make some complimentary remark after each, however much it perjured his soul! But to us children the refreshments remained the chief item of the programme.

One winter, as we got well along in our teens, we even had a literary society. The moving spirit was a Mrs. Lean, an English nurse who had spent several years in South Africa during and after the Boer war, and had come to Canada to marry a childhood sweetheart, now a widower. We elected Mrs. Lean president, and for secretary a young clerical employee of the Concern, who loved to use long words which he often had difficulty in pronouncing. His reading of the minutes was something we always looked forward to! But under Mrs. Lean's prodding we did some serious work, and doubtless benefited therefrom.

In late winter or early spring we often had a thaw big enough to flood the meadow below our house. Ensuing hard frost would then give us the best opportunity of the year for skating. A bright moonlit night was always the signal for an impromptu party of ourselves and young French neighbours. The sport was enlivened by a rough-and-tumble game called "Black fare well". Opposing teams, designated Black and White, lined up at opposite ends of the ice sheet. The leader shouted, "Black, fare well!" and both teams raced towards each other like a mêlée of jousting knights. White tried to capture and hold Black, who by concerted line-plunging worthy of a modern rugby team strove to break

through and continue to the end of the rink. The captives became part of the White team, which the decimated survivors had again to face till all were caught. Then the teams exchanged functions and started all over again. Ultimately we were exhausted and ready to go home to the recuperative snack awaiting us there.

Bright moonlight any time in the winter was an invitation to go sliding on Charron's hill, a substantial declivity midway between our house and the village of Plaisance. Road traffic at night was so little as to create no appreciable hazard. The parallel, ribbon-like troughs of hard-packed snow were ideal channels for our narrow sleds. Since there were two such channels side by side, races were natural and inevitable, often with two boys lying two-deep on each sled. I ← In mid-winter the snow often lay four feet deep, and heavy-laden sleighs sometimes wore cahots, - cowholes the English called them, - at the bottom of the hill, like modern washboarding greatly exaggerated. Then a slide could be very bumpy, especially for the under boy! One night on that hill we were dazzled by a meteorite, a shooting ball of fire appearing the size of a football, which lighted the countryside with the brightness of day.

In the field of community entertainment one must include weddings. These were bound to be numerous, as large families were the rule. I knew of one French family in the Montée St. Charles with twenty-three children, and one Scottish family in the Gore of Lochaber with fifteen. To marry off all the daughters involved a substantial series of ceremonies, followed,

especially in French homes, by hilarious feasting and dancing far into the night. A fiddler provided the music, and the "caller" lubricated his throat with "whiskey blanc." Neighbours as well as the numerous relations were customarily invited. Normally we did not participate extensively, but could not help enjoying vicariously the wedding parties of our neighbours just across the road. English family weddings were pale in comparison, though by our more conservative standards not lacking in colour and merriment.

Other activities of our immediate neighbours that we found entertaining included especially the swarming of their bees. We always had immediate and ample warning when a swarm took off. The whole neighbour family turned out at once, armed with every noise-making contraption at their disposal, from cowbells to dishpans, with an occasional blast by le père Jos. Charbonneau from his muzzle-loading ~~shotgun~~ gun. La mère Charbonneau usually carried buckets of water, which she hurled through the swarm in dishpan instalments. This impromptu thunderstorm was intended to scare the bees into an empty hive placed below them.

In my early years I was occasionally allowed Friday overnight visits with a school chum, Leslie Cummings. A sparkling Laurentian brook ran through the Cummings farm, and Saturday would be devoted to fishing, with grasshoppers as bait and willow sticks as rods, for the delectable speckled trout in which the brook abounded. Beginning at the head of the brook we worked downwards to where it cascaded into the North Nation River. The pools and eddies at the base of each fall had the largest and choicest trout, the climax of our day's adventure. Or perhaps the real climax was

the evening meal at which we feasted on our catch! When I visited the site many years later I was disappointed, though not really surprised, to find the fishing rights had been preempted by some wealthy club. This is known as modern progress!

Except for the Concern storekeeping family at Plaisance, our nearest English-speaking neighbours were a mile and a half away, but we enjoyed an occasional evening veiller with nearer French-speaking ones. Here table games were the rule, most often a simple card game such as "Pit", which was in vogue at the time. It was a noisy and exciting game, in which all called repeatedly and more or less simultaneously the number of a card ~~each~~ wished to trade in order to complete his hand. It took its name from its general resemblance to the transactions in the pit of a grain exchange.

Another card game less suited to linguistically mixed groups, but which we enjoyed at home, was "Authors". The card pack consisted of sets of four, each card bearing the name of a classical author and three of his best-known works. Either the author's name or one of the book titles identified a card by appearing in bold-faced type. The object was to get as many complete sets as possible by calling upon another player for the card desired. If the second player possessed the card he was bound to yield it up, and the first player retained the right to continue his demands on any player he judged to possess another card he desired. But as soon as he guessed wrong the role of bidder passed to the player who had stumped him. This was a good game, not only training memory and perception, but giving an acquaintance with many great names in English literature. It had a profound influence on me, giving me the desire to read

every one of these books, an ambition it took almost a lifetime to fulfil. Of course they were read at fairly wide intervals, and slowly, often lingering over a passage to enjoy its beauty or to admire the turn of a phrase. I sometimes wonder whether the modern craze for speed in reading really gets its votaries anywhere, whether quantity is exalted at the expense of quality and reflection.

Neighbourhood parties were by no means frequent. Even Hallowe'en parties were family affairs at Plaisance. They included making pumpkin lanterns, ducking for apples floating in a tub, pulling taffy, moulding doughnuts into grotesque shapes, and wearing false faces. But pranks at the expense of neighbours and canvassing for "trick or treat" were unheard of. Then of course there were family birthday parties, but our normal evenings were spent quietly reading around the dining-room table by the light of a large hanging lamp in the centre. There were no distractions such as movies, radio, or TV. Whether these latter-day diversions are on balance a good thing, is with me a moot point, though the younger generation probably has no doubts.

Plaisance was not in a maple sugar district, the dominant trees being pine, spruce, poplar, and white birch. But most farmers had a clump of sugar maples, which they tapped in spring. We were no exception, and when the frosty nights and sunny days towards the end of March promised a run of sap, we crunched happily over the crust of frozen snow in early morning to bore the trees and set the spouts and buckets. On succeeding mornings we visited the trees to collect the sap in a milk can on a hand

sled. As the season progressed the snow was reduced to patches and the sledding became hard. But we were young and vigorous, and the reward was great! The first syrup of the season tasted especially delicious. Of course, our crop was far too small to justify investment in the modern evaporator then coming into use, and we did not even use the "cooler" - a large cast-iron cauldron - though we had one. Instead we thought it simpler to boil down the sap in a wash-boiler and pots on the kitchen stove. What our long-suffering mother thought of our filling her kitchen with steam, she never divulged. She even did the firing-up during the day, and I spent many an evening by the stove, reading and firing. Of course we performed the usual experiments we had heard of, such as boiling eggs in sap to enhance their flavour, and later in the season persuaded mother to use maple syrup instead of ordinary sugar in making strawberry jam. The delectable flavour of the resulting product needs to be savoured rather than described. It belongs with nectar and ambrosia.

The "cooler" mentioned above was still used by some neighbours for boiling down sap. It was slung on a pole through the handle, over an outdoor fire. Smoke and small bits of wood and ash contributed to the good old-fashioned flavour of the syrup. But we used our cooler only for such things as heating water to scald slaughtered pigs, making soft soap, and making tea at community picnics. Incidentally, the raw materials for the soft soap were home-produced - fats from butchered animals, and a lye solution from rain-water percolated through a barrel of ashes. In later years the lye was bought in cans, a labour-saving step,

but also one of the tiny steps in the gradual erosion of the farmer's sturdy independence and self-sufficiency.

Lumber was another product of the farm forest. Each winter we cut a supply of fuel to be drying in readiness for the next winter. While cutting trees for fuel, we saved the sawlogs. When enough of these had accumulated, we loaded them on our bobsleigh, nine or ten to a load triangular in cross-section - they were not the huge logs that citizens of British Columbia are accustomed to - and bound them fore and aft to the sleigh bunks with logging chains for hauling to a small mill in Papineauville, some five miles east of Plaisance. In due course we brought the boards home and piled them in three-cornered fashion, the boards overlapping at the angles, an airy arrangement that promoted curing. This was our reserve for the building or repairs that every farm must undertake from time to time.

Trees of sawlog size we cut with a crosscut saw, one of us at each end of the saw.* All others we cut with an axe, and in course of time gained some proficiency in its use. Occasionally we hired the help of Zotique Charlebois, reputed the best axeman on the montée, the side road on which we lived. We learned from him to use "Black Prince" axeheads, shaped to bite deeply into the wood with minimal effort, also the great

*The local French-Canadian name for this saw was galon d'or. I spell this here as it sounded, though I have not been able to verify the spelling or determine the origin of the usage, except that it came from Old France with the early colonists. Just possibly the zig-zag pattern of gold-braid edging on garments of that period suggested to someone the cutting edge of the saw.

advantage of being able to chop from both sides of a tree, that is, righthanded and lefthanded. This made the opposite cuts meet at the same angle; it also saved having to walk round the tree, sometimes in deep snow, to make the second cut. Indeed, sometimes the terrain was such that the tree could be approached conveniently only from one side, and he who could not chop from that side was seriously handicapped. I practised persistently this ambidexterity, not only with the axe but also with other implements, such as shovel and fork, and found it rewarding.

The trees cut for fuel were hauled home and piled teepee fashion till we were ready to saw them into furnace or stove lengths. Then the pieces were split and piled cordwood fashion behind the house. At first the two-man crosscut saw did the final cutting up, but in later years we hired on a custom basis a circular saw driven by a horse treadmill or, eventually, by a gasoline engine.

Other products that we took to Papineauville for processing were barley and oats. The internal combustion engine was just beginning to appear, and later brought in its train farm grinders and other small-scale equipment. But in our day we relied on the custom grist mill, its stones driven by an overshot water wheel, with the miller's toll one bag in seven. Soon after the turn of the century an enterprising miller just north of Thurso, the next town west of Plaisance, some nine miles distant, introduced steel roller mills for grinding wheat. Thither accordingly we took our Red Fife or White Fife wheat. Our Quebec soil and climate did not produce the high-protein, hard

wheat of the prairie provinces, but in my mother's skilled hands our wheat flour made bread of a delicious, nutty flavour such as I have never tasted since. We also arranged with the miller to divert a few sacks of grist in an intermediate stage for making porridge. These "middlings" are nowadays sold universally as "cream of wheat". This product alternated with oatmeal porridge on our breakfast menu.

Winter was the season of heavy hauling of all kinds. A team of horse could haul almost twice the weight on runners that it could manage comfortably on wheels. When we were not too busy with our own work we occasionally hired out to the Concern to help transport a freight carload of millfeed, flour, salt, or other merchandise from Plaisance to North Nation Mills. We regularly loaded 40 cwts., the maximum our team could pull up Charron's Hill, the escarpment marking the north bank of the Ottawa River in prehistoric times. I was the teamster, and the 120-lb. sacks of salt were a real test of my strength in my middle teens. But we were paid 10 cents a cwt. for hauling, and two trips a day, a total of twelve miles, made us \$8.00 - very good money at that time.

Many young men took their teams to the Concern's lumber shanties in the upper reaches of the North Nation River for the winter, but my ambitions in that direction remained unfulfilled, to the relief of my parents, as the shantyman had a rough life in those days. Our team had on the whole a slack time during the winter. As spring came on, we began to bathe their shoulders daily with salt and water, to harden them against the strenuous days of pulling ahead. Most plowing

was done in the fall, to let the winter frost mellow the heavy clay. But the disc harrow, seed drill, roller, and drag harrow kept the horses pulling most of the daylight hours in late April and most of May. Broken skin on the shoulders was a tragedy to be avoided at all costs. Rain at that time of the year might seriously delay seeding operations, but an occasional rainy day might be welcomed on other grounds. "More rain, more rest," said the farmer's boy.

Spring was ushered in by various signs and portents. Not long after the maple syrup season came the spring chorus of frogs. Our house and farm buildings were on well-drained, sandy upland, but this fell away abruptly to lowland, not much of it on our farm, but mostly at the back of my grandmother's place next door and on the adjoining farm eastward. Here numerous spring pools supported a teeming frog population. At dusk they began their serenade, the soprano peepers predominating, but loyally backed by an assortment of bass croakers. One of the latter was the signal to our French neighbours that potato-planting time had arrived - always providing the stage of the moon was propitious. But signs of greater independence of thought were appearing. A day was always set aside for the faithful to assemble in church to pray for the newly seeded crops. A certain neighbour was found top-dressing his field with manure that morning, and when another neighbour driving by to church remonstrated, the first retorted, "Les prières sont bonnes, mais le fumier est le coq." (Prayers are good, but manure is tops). One very pleasant ceremony took place the evening of May Day. Just after the church bell had sounded the Angelus, we could hear the village processional hymn

borne from afar on the still evening air:

C'est le mois de Marie,
C'est le mois le plus beau; ...

This could hardly fail to inspire a feeling of reverence, whatever one's religion.

The two-horse team was the regular unit of farm power, whether for hauling on the road or for operating farm equipment. A third horse sometimes cooperated in doing odd jobs with a cart or other single-horse unit. The treadmill was the standard source of mechanical power, especially for threshing, often done on a custom basis. We ourselves acquired a threshing outfit at an auction sale, in cooperation with our nearest English neighbour, Jim Smith. We had thought to use it for the two owners only, but found we could not escape helping out a small group of neighbours. About three weeks in early fall were often spent on this work.

The farms fronted, of course, on the community roads. The main road along the Ottawa River was simply called le chemin de Papineauville - or whatever happened to be the next town - but the north-south roads which abutted on it were called montées, because they climbed gradually upgrade from the river level. We were on the montée Papineau. Our farm had the customary frontage of five arpents on the montée and extended eastward twenty arpents to the montée St. François. Strictly speaking, the arpent is a unit of square measure, but the colonists who brought it with them from Old France used it also as a unit of long measure, the distance along one side of a square enclosing one arpent. The English settlers treated acres in the same way. A linear arpent was about 64 yards, and a linear acre almost 70 yards.

Incidentally, we never heard the words ferme and fermier until we studied French at school. To the Canayen a farm was une terre, and a farmer was un habitant. We were accustomed, of course, to many other French-Canadianisms, such as pataque for potato and piastre for dollar. The quarter dollar was called trente sous, the half dollar deux trente sous, and seventy-five cents trois trente sous, relating their values to the old French franc. Speaking of currency brings to mind another old unit, this one unofficial, the bon. Shortage of currency led the merchants of Lower Canada to give their patrons notes for a specified value, redeemable in merchandise at the store of the issuer. These often changed hands as a form of money. In our early days at Plaisance the local merchants still gave notes of this kind to local farmers who brought in farm products such as butter and eggs, and who did not wish to exchange them immediately for store commodities.

The corner posts of the farms had been ~~set~~ by early surveys, but it was left to neighbours to run connecting lines on which they could agree. Our south boundary presented no problem, as ours was the first east-west farm on the montée. Four farms running northward from the Ottawa River road abutted on that side; consequently survey posts occurred at fairly short intervals. The north boundary was much harder to establish, as the east end of it was broken by deep coulées, heavily wooded. With no special instruments at our disposal, we spent several days with our neighbour, Napoléon LeBlanc, trying to make the line of pickets come out at the right place on the montée St. François. Eventually we got tired, and satisfied ourselves

with minor adjustments to make the line look right.

In 1896, two events had a particular influence on my development. On a blustery day in March, Richard Owen arrived, in a black pillbox hat with ear-flaps tied under his chin. He was a Dr. Barnardo Home boy, then aged 14, and sadly undergrown for his age, the result of early privations. My parents must have pondered this experiment long, knowing that I, aged 7, would inevitably take him as a model. But he turned out well, and in process of time became a prosperous farmer and resort proprietor at Weir, in the neighbouring county of Argenteuil, this location being determined by his marrying the daughter of a house he was visiting there. Meanwhile, he thrived under generous farm fare, and developed a buoyant disposition which was good for me. He was a voracious reader, and remembered what he read. My mother tacked pages from "The Family Herald and Weekly Star" behind the wash-stand in the kitchen, to protect the wall from splashes. The urge to read them so delayed Dick's ablutions that mother tried the stratagem of tacking them upside down, but this only made the reading more difficult and slowed the whole operation a bit more.

Dick and I slept together for two years, and every night after retiring he told me a story, usually from the Arabian Nights or Grimm's fairy tales, which he knew before he reached us. I listened eagerly. We read Robinson Crusoe together - not the watered-down/^{version} later served up to young boys, but the original volume, "reflections" and all - and then started on Dickens, of whose novels we had a complete set in our home library. We made quite a dent in them during the active two

years he was with us, leavening them with easy tales of adventure such as "The Coral Island" and "Masterman Ready". G.A. Henty's incomparable books for boys had not yet reached us, but they, together with the "Leather Stocking" tales of James Fenimore Cooper, absorbed my attention in the years immediately following.

In early summer of 1896 came the general election which saw Sir Wilfrid Laurier displace Sir Charles Tupper as Prime Minister. Henri Bourassa was the Liberal candidate in our county of Labelle, initiating his long political career. He was a stormy petrel on the sea of politics, both federal and provincial and in the columns of his newspaper, Le Devoir. My first personal contact with him did not come until some 40 years later, when he addressed the Canadian Club in Ottawa. By that time he had mellowed to the status of an elder statesman. In 1896, after listening to Sir Charles Tupper and the local candidates, my father, though a devout Conservative, decided it was time for a change. I believe he was secretly ashamed of this apostasy, as he never referred to it afterwards, but always stoutly defended the Conservative line. Indeed, his vigorous Conservatism was sometimes a minor source of embarrassment to my mother, as most of our visitors seemed to have Liberal sympathies, and the arguments waxed hot. The 1896 election was the first I remember, and it stirred in me a political interest I never lost, though, unlike my father, I never adopted a consistent party line.

In 1897 came the Queen's Diamond Jubilee. By this time my father had returned to Montreal. The surviving partner of the ^{firm} Esplin/had invited him to his former position as manager, and my father abandoned for the time being the struggle to make a

living of the desired standard on the farm. For the next year my mother managed the farm as well as her household of four children and Dick. The last-named was chore boy, and we had hired help from time to time as needed. Here I should mention that my grandfather's three sons (two of them by a previous marriage) left home early, leaving his five daughters to help him with the farm work. These had grown strong and experienced in the process. One especially, Rachel, who remained with my grandmother after my grandfather's death, was the equal of any ordinary man in strength and skill. She helped us out many times.

To return to the queen's Jubilee: My father took me to Montreal to share his lodgings awhile, and see the decorations, processions, fireworks, and other features of the celebrations. But the thing that impressed me most was the bath-tub with hot and cold running water! Indoor plumbing was for the most part still unknown in rural Quebec. My only disappointment was that I was not allowed to fill the tub right up to the brim.

Chapter II

CITY INTERLUDE

The period 1894 to 1908, when I entered Macdonald College, seems in retrospect to be associated mainly with Plaisance, and the years in Montreal, 1898-1903, only an interlude in a continuous program. Though we leased the farm to a tenant during the first three of these years, we spent our holidays at our grandmother's next door. The remaining two years we operated it as a grass farm, living in the old house during the summers, and making and baling the hay for shipment to the city. We children were well-grown and strong for our ages, and did our full share of the work. In the foregoing pages I have referred indiscriminately to events throughout the whole period.

We moved to Montreal in the spring of 1898, the only summer we missed spending at Plaisance. My father had preceded us by a year, and had secured a house for us at 112 Duke Street. My mother went a few days ahead of us children, to get the house ready. In the brief interim we were left in charge of our grandmother and Aunt Rachel. We felt very important travelling for the first time independently on the train to Montreal. We were proud of our youngest brother, Jack, then three years old, dressed in his "Little Lord Fauntleroy" suit, complete with velvet jacket and white collar, all made by the diligent hands of our mother. Our parents met us at Dalhousie Station (later called Place Viger) and, after mother placed new caps on the heads of the three boys, we made the rather long street-car ride to Duke Street. By that time the cars were electrified;

during our earlier sojourn in Montreal they had been horse-drawn.

For my parents it was almost like returning to their first home. My older sisters, Janet and Margaret, and I had been born next door at 116 Duke Street. Both houses were part of a solid brick row of three, belonging to the G. & J. Esplin firm. Their large box factory was on the opposite side of the street. The houses were provided with commodious back yards, which my father arranged to have floored with planks for greater cleanliness. During this operation the fences were removed, and for a time were not replaced, my parents thinking that the large uninterrupted space would make a better playground for the children of the three families. All too soon they realized that none of us children were angels, and that good fences still make good neighbours!

But, on the promise of good behaviour, we had access to a much larger play space. Surrounding the row of houses on three sides was a large yard lined with sheds for the storage of lumber and vehicles. One front corner of this was occupied by the firm's office building, separated from the houses by a vehicle entrance. At the other end of the row of houses, in the back corner, was the stable of some two dozen horses, and at the street another vehicle entrance. Both these entrances were closed at night by heavy portcullises.

These were no jerry-built structures. They stand today, 1962*, looking as solid as ever after nearly a hundred years.

* Not many years later the houses were torn down to make room for the substructure of an overpass to "Expo 67". The factory still stands, 1966.

In those days of 60-hour work weeks it was no small advantage to have some senior employees living close to the establishment. They took turns in opening the office just before 7 a.m., and in ringing the bell which was the signal to begin the day's operations. I never had a chance to ring the morning bell, but was sometimes permitted to ring the stopping signal at 6 p.m. It was quite a large heavy bell, and took all my strength and the full extent of my young arms on the rope to get it going all out. My father made his first round of the factory promptly at 7 o'clock, to see that everything was starting smoothly, but returned later to have breakfast with his family. My bedroom window was opposite the engine room, and I often watched closely as the engineer started it up. It was a large, single-cylinder engine, and required careful handling to avoid getting stuck on dead centre. The main driving wheel was nine feet in diameter, with a drive-belt two feet wide - huge and impressive it looked to me.

That summer in the city was a test for my mother, with four young children to keep busy. The first-born, Janet, had died in childhood. The four now consisted of Margaret and me, William, who was born early in 1893 in a suburb whither my parents had moved in quest of fresher air, and John Dawson, who was born at Plaisance near the end of 1894. Our mother organized many picnics to St. Helen's Island (reached by ferry then), and to city parks at Maisonneuve, Fletcher's Field, and of course Mount Royal. To ride from Fletcher's-field to the top of the mountain on the incline railway was a special treat. We were living not far from the Lachine Canal, and occasionally my mother allowed me to take my young brothers there. We would

sit on a piece of timber on the canal bank and watch the operation of the tugs and barges, dreaming that we too might one day sail our ship. The ponderous swinging of the hand-operated lock gates, and the slow rise and fall of the boats, also commanded our attention. Occasionally a paddle-wheel steamer bound for the Ottawa, such as the "Empress" and the "Duchess", would make its tedious way up the canal. Coming down, these steamers shot the Lachine Rapids, a thrill we shared when we went on a Sunday-School picnic or other holiday excursion to Chateauguay or Sherringham Park.

Under my father's tuition, Margaret and I began a formal study of French, to be more ready in September for school, where pupils of our age had already had at least a year's instruction in this language. When September came, we found ourselves behind the other pupils in some things but ahead in others, especially in reading. I was used to reading solid stuff, and was astonished to hear some of the other boys stumble haltingly over Hans Anderson's fairy tales.

Meanwhile, further to occupy my time during the summer, my father allowed me to work in the box factory. My job was to clamp the tops on butter boxes, after a kindly, peg-legged Frenchman had brushed the insides with melted paraffin wax, and to pile these boxes beside ~~beside~~ a slatted delivery chute down which the shipper slid them from our floor, the second, to a waiting teamster in a truck at street level. The shipper was Harry Heavysege, our next-door neighbour and a cousin of Charles Heavysege, the poet. In spare moments I watched admiringly as shipper and teamster cooperated in rhythmic

dexterity, throwing, catching, and placing the boxes. I was paid at the rate of \$2.00 for a week of 60 hours. Of course, my father never permitted me to work full time, and the most I ever earned ~~was~~ in a week was one dollar. But with immense pride I lined up at 6 p.m. Saturdays to receive my pay envelope. There were some 200 employees, and even at my tender years I did not fail to notice the affection in which they held my father. They called him "Mr. John". Later I was to realize more fully his own practical concern for their individual welfare.

We had brought along our black team of horses, Prince and queen, and they gave me an immediate link with the stable. I cultivated the acquaintance of Tom Walters, the stableman. He had grown up with horses, and brooded over them like a hen over her chickens. His long experience had made him a good practical veterinarian, so that he was able to care for them in sickness as in health. He was unmarried, and lived in a small house adjoining the stable, in fact part of the same structure. The ground floor was one long narrow room, its walls adorned with coloured prints of famous race horses. "Robert the Devil" interested me specially, perhaps because of the name! Besides his horses, Tom had two smaller pets, a parrot and a goat. The latter had the run of the yard, and was often teased by neighbourhood boys when Tom wasn't around. But the goat had a useful pair of horns, and could hold its own in any serious argument. On Sundays we always had a roast for dinner, and my father carved first a liberal helping for Tom. After my mother had piled on vegetables and gravy, I took the plate out to Tom, who always expressed the same grateful surprise as

though it were the first time. Last time I saw him he had grown old and was bereft of his horses, these having been replaced by motor transport. But he was still serving the firm loyally and cheerfully, as odd-job and repair man. The world could do with more of his sort.

Dick Owen of course moved to Montreal, too, but after the first year he was placed with Mr. and Mrs. Alex Gunn to live. These were a young Plaisance couple who also came along with us, Alex being engaged by my father as a foreman. Dick was apprenticed in the grinding room, to learn how to file saws and sharpen planer knives. Apparently the metallic dust corroded his lungs, and a few years later he was sent back to the country, to the farm of an acquaintance, where, as mentioned earlier, he married the daughter of the house and settled down. Nowadays the name Owen appears very often in the district news columns of "The Lachute watchman" in connection with activities at Weir. But while the founder of the family was still active in the grinding room I occasionally visited him there, and enjoyed the showers of sparks from the emery wheels.

Though I have called this period in the city an interlude, I am not unappreciative of the very great benefit of the sound schooling we received there, for three years at Ann Street School, then for two years at the Montreal High School.

The district served by Ann Street School later deteriorated into the slums of "Griffintown", and still later was taken over by industry. But in those days the school had a first-rate clientele and gave many distinguished men and women to the business and professional life of the country. If its teachers

had less professional training than those of today, they made up for this by character and experience. My first teacher there, Miss Sarah Millan, and my third, Miss Letitia Barlow, had both been teaching some thirty years before they took me effectively in hand. There was not much they had not learned about applied psychology. Between the two came Miss A.G. Steen, B.A., the only member of the staff, apart from the principal, to possess a university degree. Her signature never appeared without it! She sought to shame us into better English usage by pointing out what people would privately say of us if we went out into the world using such expressions as "aint" and "bust". But Miss Barlow's pounding on the desk with her ruler was really more effective.

These teachers taught all the subjects of the curriculum except singing — and a Friday afternoon treat of going to another room and reading aloud from "Things New and Old". Miss Ballantyne presided over both these rituals. Her unfailing good humour kept us that way, too. The first two years of singing were devoted to tonic sol fa, but the third year we graduated to the staff notation. For many of us that was the only formal instruction in music we were to get, and I can testify to its lifelong usefulness.

An incentive to proficiency in singing was the prospect of being selected as a member of the Empire Day choir of a thousand ~~thousands~~ children's voices, directed by W.H. Smith, the supervisor of singing in the city's Protestant schools. All year we practised the songs for this concert, first in our own school classes, but towards the end of the year in combined sections

of the final choir, with Mr. Smith conducting. Our section practised once a week, after regular school hours ~~hours~~, at Riverside School in Point St. Charles. Between that school and Ann Street School there was a long-standing feud and , to avoid street fights after the practice, we of Ann Street were dismissed ten minutes before the Riverside contingent! As befitting Empire Day, the songs were mostly of national character, one each for the principal Dominions of the Empire. But there was always one comic action song, which we loved. I remember especially the one beginning:

"Across the sea, as travellers tell,
Some very very funny people dwell,
But the funniest folk they well can find
Are the men with the pigtails hanging behind."

This appealed to us, as the Chinese laundryman in native dress and pigtail was a familiar sight sight in Montreal. Indeed, we children had a general notion that all Chinese were laundrymen and all laundrymen Chinese. It was a disillusionment when the Troy "steam" laundry started up in our neighbourhood, with power washing machines tended by white girls. The song would surprise, and even offend, the new China, but that was far in the future. It was good fun to push large cards of various colours up and down to form rhythmical patterns as we sang, but a headache to Mr. Smith to keep the ups and downs from getting mixed. The concert was held in the Arena, in Westmount, with an audience of about 3000. We had a good army band to accompany us, and ended with that grand old hymn, "O God, our help in ages past."

Another annual concert was that of the Caledonian Society, again featuring a children's choir, this one of about 150 voices,

to which we were admitted on the strength of our infusion of Scottish blood. We were trained in groups to begin with, meeting in the home of the director. S.S. Bain, a florist with an inexhaustible store of Scottish patriotism. His own solo contribution was "Scots wha hae", which acted as a useful and apparently necessary outlet for his emotions. He had a surprising range of volume control, and tried to instil some of it into us, but we were scarcely equal to his shattering crescendos. We were also extended to capacity by the supper served to the children of the choir before the concert, in the rooms behind the old Windsor Hall, where the concert took place. We feasted on goodies supplied by our mothers. Fortunately none of them was addicted to haggis! The program included many Scottish dances, mostly by children, accompanied by the bagpipes of course, also an excellent display by the Highland Cadets. Altogether it was an event to look forward to.

A memorable event in the old Windsor Hall was a visit from General William Booth, founder of the Salvation Army, and his daughter Evangeline. Two of my mother's sisters then belonged to the "Army", and later entered full-time service with it. One of them took me to hear the Booths. I was emotionally stirred by their urgent pleadings, but still not a little embarrassed when a "soldier" entreated me to join the ranks of the penitents in the front row, especially as my school-teacher, Miss Letitia Barlow, was sitting directly in front of me. When the soldier transferred his attentions to her, I was relieved to hear her say, "It is all right with me," so he went on to the next. Evangeline, as befitted her sex, was gentle in her

persuasions. We were charmed when she placed a flaxen-haired waif on a chair to sing sweetly, "I'll be a sunbeam for Jesus." The old General, her father, finished his address with the stirring command, "Fire a volley!" to which the Salvationists present responded in concert with a rousing "Hallelujah!"

Years later, on our honeymoon trip to England, my wife and I visited the London cemetery where her uncle, John Read, was buried. He had given notable service to the Salvation Army in Canada and in Newfoundland, rising to the rank of Brigadier. He had been in turn editor of the Canadian "War Cry", officer in charge of the Army work in Newfoundland, and then in all western Canada, from Manitoba to the coast. He died while on leave to visit his old home in England. Nearly 2000 "soldiers" attended the funeral, which, in recognition of his special love of music, was marked by several bands in the cortege and the International Headquarters Staff Band at the service. Not far from Brigadier Read's grave was that of General Booth, with a simple but impressive oak shield at the head. The movement he founded has won universal respect. It is especially appreciated by veterans of two world wars, who give "Sally Ann" first place among the humanitarian agencies which relieved their hardships.

An experience comparable to hearing General Booth was hearing the Torrey and Alexander evangelistic team in Massey Hall, Toronto, in 1905. One of my aforementioned aunts was in service with the Salvation Army there. I visited her on my way home ~~home~~ from a short course at the Ontario Agricultural College, Guelph, and ~~she~~ she suggested we go to hear the famous pair. My most vivid impression is of the packed audience

roaring out the Glory Song — "O that will be glory for me,..." and so on. It was to become very familiar to me, since under the impact of Torrey's preaching and Alexander's singing their hymn-book was adopted by many country churches, including ours at North Nation Mills. It displaced temporarily the larger and soberer collection of Ira D. Sankey, of the Moody and Sankey team which had stirred the generation before.

To go back to early days in Montreal: The annual games of the Montreal Amateur Athletic Association, on their/^{own}field equipped with a large grandstand, interested us because we or our neighbours generally knew some of the competitors personally. The bicycle era was at its height, and bicycle races aroused great enthusiasm, especially when the competitors rode bicycles built for six. Probably it was our instinct for team play that made us thrill also to the war canoe race at the annual regatta at Lachine.

It was at Ann Street School, at the turn of the century, that we saw our first motion picture. A visitor brought a lantern, with mechanical attachments which he cranked by hand, and a film of the Royal Navy. It was a jiggly performance, hard on the eyes, with plenty of interruptions for adjustments, but we saw the movements of the ships and waves clearly enough, and were excited at the prospect of a new kind of entertainment. We were too young to be concerned about educational values.

In my class at Ann Street School was a red-haired boy named Winder. We fought at first, not because we felt any animosity, but because the older boys egged us on. That phase was short-lived, and thenceforth we were close friends. One

experience with him stands out unforgettably. On a sunny Sunday morning we were strolling together, and reached Little Craig Street. There was very little traffic. Suddenly our attention was called by a ringing of bells, and looking that way we saw an ambulance drawn by galloping horses appear at the other end of this short street, where stood a street car and a small crowd of people. Of course we ran to see what was up, and found by inquiring of bystanders that a small boy had lost part of his foot under the wheels of the street car. We picked up a few details, true or otherwise, and Winder reconstructed the whole story in his imagination. Apparently he volunteered as a witness, and gave my name, too. That autumn, as I was starting my high-school education at 12 years of age, I found myself subpoena'd as a witness in an action for damages against the Montreal Street Railway. Naturally our stories ~~varied~~ *diverged* widely, but I heard the judge say that Winder had impressed him as a truthful boy! So he was, in his own eyes, for when I sought to remind him that we had actually not seen the accident, he stared at me uncomprehendingly. Apparently he had become fully persuaded of the truth of his story. W.D. Lighthall was counsel for the plaintiff. He was then a rising young barrister, but later was appointed a judge, and became still better known as a Canadian poet. It was in this last capacity that he was elected to the English literature section of the Royal Society of Canada. In later years I met him occasionally at meetings of this society. I asked him once if he remembered the case in which Winder was the star witness. He replied, "Yes indeed. It was one of my most celebrated cases. I took it all the way

to the Privy Council." I thought it discreet to leave him in blissful ignorance of how he and the court had been deceived.

In the Montreal High School, then occupying on Peel Street the present site of the Mount Royal Hotel, the Rector, as the presiding master was called, was the Rev. Elson I. Rexford. He did little formal teaching, but his influence was all-pervading and strong. First thing Monday mornings the whole school met for twenty minutes in the assembly hall, where Professor Guillaume Couture's authoritative playing on the grand piano ushered us in and accompanied our singing of both hymns and songs. The Rector opened with a brief prayer. I still hear as though it were yesterday the musical cadence of his rich baritone voice: "Almighty God, our heavenly Father, without whom nothing is strong and nothing holy, let Thy favour rest upon us Thy humble servants. Here, and before Thee, pardon all our sins, defend us from all evil, and lead us into all good. ..." After a hymn came a Bible reading and a short talk, usually by the Rector, but sometimes by a visitor. It was through the Rector's words that I first apprehended the quintessential wisdom of St. Paul's admonition: "Whatsoever things are true, ... honest, ... just, ... pure, ... lovely, ... of good report; if there be any virtue, and if there be any praise, think on these things."

In the high school, each subject was taught by a specialist, thus giving us beneficial contact with many strong characters. I was delighted to find that H.H. Curtis, the author of the small French textbooks we had used in Ann Street School, was to be our instructor. To be the author of a book set him on a pedestal!

I was not disappointed in him, but was soon to find that other teachers might attain equal or even greater distinction without such adventitious aid~~s~~.

Dr. Kelly, the sixth form master, taught English to all the boys' classes from the third form onwards. He had a way all his own. "The Lady of the Lake" and "Ivanhoe", together with Paul's letter to the Philippians and selected Psalms, were our texts in the third form. Dr. Kelly gave us reading assignments, and in class dictated passages from these, skipping words and interpolating a "dash" for each word skipped. Needless to say, we soon christened him "Dr. Dash", and revised our school songs to incorporate plenty of dashes for his benefit. But his method encouraged the important habit of concentration in reading, which is at least incipient in most children. Whether it was Dr. Kelly's teaching or Scott's genius that attracted me, my interest became such that my mother bought a complete set of Scott's novels, which I devoured over a period of years.

If anything could have inspired in us a love of Canadian history, it should have been the enthusiastic teaching of Mr. I. Gammell in the third form (the first year of high school proper). To read it as a story delighted me, but to feel obliged to read it with an eye on examinations somehow took the edge off my pleasure more than with any other subject. My greatest satisfaction lay in the supplementary reading, not for examination, especially of Francis Parkman's "Montcalm and Wolfe". At twelve years of age I was scarcely able to analyse the reasons for my satisfaction, but later realized it owed as

much to the beauty of Parkman's style as to the intrinsic interest of the story. Parkman has another account of the taking of Quebec in "The Conspiracy of Pontiac", and an abridgement of this was included in the reader we used at North Nation Mills some years earlier. When Mr. Gammell assigned us the task of writing an essay on this subject, I was to learn that too good a memory may sometimes be a handicap. Actually it was not till some years later that it dawned on me why he had given me such a low mark on this essay. He had doubtless recognized the source of my material, and in any event would have rightly concluded that locutions such as "The eventful night of the twelfth was clear and calm," and "To the boundless joy of the army Wolfe's malady had abated, and he was able to command in person," were not coined by a twelve-year-old! Yet I had written spontaneously and innocently, not even thinking where the words came from. But it was no go!

That school reader which I read as a child of eight years, I had accepted as gospel truth, including the part about Wolfe's sitting with a group of officers in the stern sheets of one of the thirty boats drifting silently with the tide, and reciting to them softly the stanzas of Gray's "Elegy", lately published and just received from England. "Gentlemen," he ended, "I would rather have written those lines than take Quebec tomorrow." It therefore came as a shock to read correspondence in "The Listener" dismissing the story as a "romantic accretion". But the happy ending came with a letter from H.J. Ewart, in the issue of May 21, 1959, stating authoritatively: "The story is told in an obituary of Professor John Robison (Professor of

Natural Philosophy, Edinburgh), who was actually in the boat with Wolfe at that time." Later I found that Parkman, the meticulous historian, had traced the story to the same authentic source.

In discussing the fall of Quebec, Mr. Gammell mentioned that the only painting of the death of Wolfe had been done by Benjamin West from a description of the event, without any firsthand knowledge. I immediately remembered my grandmother saying that one of our forebears had been an artist as well as a soldier, and that he had been present at the death of Wolfe and sketched the scene then and there. I had inquiries made among my relatives at Mount Maple, only to learn that it was too late to save this precious relic. The attic had been cleaned out a year or so before, and the painting found stained by a roof leak and consigned to the flames!

~~was on us.~~"

The Montreal High School gave me my first experience of physical training in a well-equipped gymnasium, under the efficient supervision of Mr. Powter. In addition to running, jumping, and tumbling, and the usual routine on low, high, and parallel bars, we learned the rudiments of military drill, including the use of rifles. It did not occur to us or, I think, to our parents, that the latter exercises might give rise to dangerous thoughts. Actually they smartened us up considerably. As a preliminary requirement for these gymnastics we were given a physical examination by Dr. Robert Tait Mackenzie, then on the threshold of his brilliant career as an exponent of physical fitness and sculptor of athletic figures and groups.

The assembly hall of the high school was the scene of occasional late Friday afternoon lectures, to which we paid an admission fee of five cents. The lectures were illustrated by slides projected by a "magic lantern". Two of these lectures stand out in my memory. The first was on Angola, by Mrs. Annie Williams Read, lately widowed after ten years' missionary service there with her husband, Rev. Francis Winter Read. She was introduced by the Rector as the gold medallist of her graduating class both from this school and from McGill University. Mrs. Read had not only excellent lantern slides, but also a splendid collection of native artifacts and curios. I watched and listened with absorbed interest, little dreaming that a dozen years later I was to marry her second daughter. The other lecture was given by a man well-travelled in South America, the geography of which as given in our school text I knew practically

by heart. But now I was to learn for the first time how to pronounce correctly the names of its countries and chief cities. My natural interest in language was always whetted by the opening of any inviting new door.

Speaking of distinguished graduates of the Montreal High School brings up a picture of William Henry Drummond, the "habitant" poet. He came to a First Baptist Church Sunday-School entertainment. The superintendent, L.H. Packard (head of the shoe blacking firm of that name — and a saint), had persuaded Dr. Drummond to give us a short recital of his poems. His readings were something to be remembered. "Leetle Bateese" still rings in my ear. My only other comparable experience was hearing recordings by Robert Service. My father had read us "Songs of a Sourdough" when these were first published, and they had made a lasting impression. Service attended a reunion of "Sourdoughs" in Vancouver in 1948, the golden jubilee of the trail of '98, and "The Spell of the Yukon" was recorded then. Ten years later came the diamond jubilee, which Service did not attend, but Pierre Berton interviewed him at his home in Monte Carlo, and made a television film we were recently privileged to see. It included Service's reading of "The Cremation of Sam McGee". My wife and I were thrilled through and through by the dramatic power and vigour of his oratory at age 85. He passed on a few months later.

One event in our city interlude was to prove a source of unalloyed and continuing joy to the whole family. That was the birth of our younger sister, Dorothy Elizabeth, in March, 1901.

Chapter III

CALLING AND ELECTION

My parents were always country dwellers at heart. Even during the city interlude my father continued to mull over agricultural reports and bulletins. Dr. James W. Robertson was then Commissioner of Agriculture and Dairying at Ottawa, and his reports were special grist for my father's mill. I was just turning 14 years when my father took me to hear Dr. Robertson lecture in the Y.M.C.A. building, then standing on the present site of the Sun Life building. I only needed to hear him once to fall under his spell. With his deep-set, penetrating eyes he looked like a prophet, and he spoke like a prophet. No small part of his self-education had evidently been drawn from the Bible. In that lecture he opened my eyes to the poetic beauty of the first chapter of Genesis, with its haunting refrain, "And the evening and the morning were the first day." In the same lecture he described his first visit to the Derby, how those thoroughbreds came down the home stretch extended to the limit of their capacity -- and a bit more. Yes, they were well-trained and well-handled, but behind that race lay 200 years of careful breeding. My father's reaction was doubtless more mature but probably just as deep. Dr. Robertson's enthusiasm and poetry may have been the last straw in weighing his decision to return to the farm. Who can resist a man who says, "Farming is not merely the breaking of clods but is the gathering and storing of sunshine in the grain for the feeding and enriching of the people?" Five years had been time enough for the hardships of my father's earlier experience to recede

into the background of his memory, leaving in the foreground the exhilarating freedom of farm life and its healthy partnership with nature. He argued that with a son and daughter in middle teens to help in field and house respectively, the burden of work should be supportable. What of the economics? When one wants something keenly enough, that question is scarcely considered. As for us children, we thought only of the joy of returning to the place we loved so well. So we moved again to Plaisance in mid-April, 1903.

My first lesson in the economics of agriculture was not long in coming. We rose at 5 a.m. to milk the cows, and before breakfast I took the milk in the tombereau to the cooperative cheese factory in Plaisance village. Once a month we were paid at a rate depending on the price at which the cheese^{was} sold. The first month we received 40 cents a hundredweight for the milk, or one cent a quart. In the city we had been used to paying six cents a quart in summer and seven cents in ~~the~~ winter for the milk we consumed. I began to think that farmers got the short end of the stick! The price did improve a little as the season progressed and the milk flow diminished, until the factory closed about the end of September, when there was no longer enough milk to justify retaining the services of a cheese-maker.

The next season we tried taking the milk to the "Concern" dairy at North Nation Mills, a round trip of five miles. The chief reason for this was to get back the skim-milk, a much better feed for young pigs and calves than the whey by-product of the cheese factory. But before the end of the season we had obtained a hand-operated cream separator, and thenceforth sold

only the butter, churned and moulded into pound blocks by my industrious mother. The mould imprinted the design of a clover leaf and blossom, reflecting the name "Cloverdale" we had given the farm. This also was printed on the waxed tissue wrapping the butter, which always fetched the price of a premium grade product. The price was only 20 to 25 cents a pound, but this represented substantially more than could be realized by selling the milk to the cheese factory or dairy.

Without benefit of formal schooling, my education progressed by leaps and bounds that first year. In addition to the usual farm operations, our main activity that year was building a new house. we had made plans before leaving Montreal, and my father had all the necessary lumber and prefabricated parts, such as doors, windows, and staircase, prepared there and shipped to Plaisance at the time we moved. A considerable pile of stones had also been hauled to the site in advance, but not nearly enough, as it turned out, for the basement walls. It is not a stony country, and we scoured our own farm for surface boulders, and then the farm of an accommodating neighbour. My young strength was fully extended, in cooperation with my father, rolling stones up a plank on to the waggon floor. Rocks too heavy to be handled that way we levered with crowbars on to a "stone boat". The stone mason and his son were powerful men, cousins of Louis Cyr, a French-Canadian who had become legendary for his strength. Unfortunately their knowledge of mortar was inferior to their physical prowess, and in succeeding summers we gradually rebuilt the walls, using Portland cement as a more permanent binder.

We hired a neighbouring handyman, a self-taught carpenter, but we did much of the work ourselves. Before the house was complete I had gained experience as a stone-mason, brick-layer, carpenter, roofer, glazier, pipe-fitter, and painter. The lather and the plasterer were the only professionals employed on the job. Towards the end of the season we had help with the roofing, and with some immediate repairs to the slipshod masonry, from another handyman, Alex Franklin, who deserves more than passing mention.

As a young man, Mr. Franklin had helped build the Canadian Pacific Railway, and subsequently worked as a section hand. Then came a spell as a storekeeper in Flaisance before he finally settled down with his substantial family on a farm at Papineauville. He never shone at anything but was good at everything. His good nature, wholesome outlook, and store of practical lore and homely philosophy made him good to be with. Despite the disparity in our ages, he and I struck up a considerable friendship.

One of Mr. Franklin's hobbies was deer-hunting, and for two years in succession I went with him and a few others for the last ten days of October. During this period the use of dogs and canoes was permitted. The lake-studded Laurentian country north of us was ideal for this purpose. This form of hunting was subsequently outlawed as unfair to the deer which, chased by dogs, took to the water, and theoretically could be overtaken and shot at close range while swimming across a lake. But with our small party distributed over three or four lakes, affording only one canoe to a lake some miles long, the chances were all in favour of the deer. After paddling fiercely to get within

range, one's arms would be trembling, and a deer swimming with only the top of his head protruding made a small target. The first season I bagged one, and the second season an English cousin who accompanied me bagged one; thus the deer population was not noticeably thinned by our activities. The real pleasure was in the outing, sleeping on the floor of an abandoned shack -- with spruce boughs to soften the impact -- eating voraciously the food we had brought us, supplemented by fresh fish and venison, and drinking deeply of the limpid water of the Laurentian lakes. We took up part of the floor to make a fire-place, and removed part of the roof to let out as much smoke as possible -- though occasionally we had to get out instead!

The rest of the company consisted of a few of Mr. Franklin's neighbours: Ned LaFlamme, an English-speaking store-keeper with a French name, and our best canoeist; Tommy Hews, who sold farm machinery and eked out his living on a small farm; Mr. Hudon, the Papineauville postmaster, who led the singing of masses at home and gave us the same vocal leadership abroad; and a Papineauville hotelman named DesJardins. All were bilingual. Mr. Franklin hauled the baggage with his waggon and team, while the rest of us drove the 30-odd miles in a ^{chartered} "stage". It was a long day, and we paused at every little village hotel for refreshments! Mr. Hudon invariably sat down at the harmonium with which these hostelries were equipped, and accompanied us in a few songs. It was there I learned a store of French-Canadian folksongs that has been a pleasure and an asset all through life.

French-Canadians just naturally sing when they get together

and have nothing more pressing in hand. I remember especially one evening long afterwards in Quebec City, when my wife and I were entertained in the home of Louis Philippe Roy, a provincial government official, with mixed French and English company. I made quite a hit there by leading in all twelve verses of C'est l'aviron qui nous mène en haut. The action part, simulating the motion of paddling, was led by Friedrich T. Wahlen who, at the time of this writing (1961-62), is President of the Swiss Confederation. Another occasion, still later, illustrates again this happy French-Canadian addiction to song. At the end of World War II the members of the National Research Council travelled by chartered bus from Ottawa to Chalk River, to inspect the Atomic Energy Establishment which was under their jurisdiction. The return trip, after evening dinner, was dark and might have been tedious but for the two French-Canadian members, who sat together and entertained us with singing most of the way.

Our horse-drawn trips from Rapineauville to Long Lake would certainly have been tedious without Mr. Hudon's dynamic leadership in song. It must be admitted that bottled refreshments helped to maintain the enthusiasm of most of the company during the intervals of travel between hotels. A curious quirk in Mr. Hudon was that when over-stimulated he always sang Les Rameaux, no doubt harking back to his church experience. However inappropriate, we all supported him loyally in the Hosanna chorus.

The second year we camped on Little Long Lake, some miles further north. This involved a second day's journey. We kept our bark canoes in winter storage at the south end of Long Lake, in charge of an Indian named Temascon, who made them for us at

a price of \$9 for a 12-foot canoe. Some we obtained from Canard Blanc, another Indian who lived on an island in Lake Simon. To get to Little Long Lake we paddled a few miles up Long Lake, then portaged the canoes on our backs for a couple more, till we reached a navigable part of the stream draining Little Long Lake into its larger namesake. Mr. Franklin and his waggon team managed to drive all the way, though the last part was a rough woodland trail. Returning that year, Mr. Franklin had to unload some baggage at the noon halt in order to get at the forage for his horses. In reloading he unfortunately missed four guns leaning against a tree, two of them belonging to Ned LaFlamme and two to me. It was not till the overnight stop, where we met our chartered stage from Papineauville, that the loss was noticed. There was nothing for it but for Mr. LaFlamme and me to walk back for them. We started at 9 p.m., carrying a lantern to save us from stumbling over roots and stones. It also served another purpose, as on our return walk we noticed in the freshly fallen snow the footprints of wolves which had followed at a respectful distance behind the light. After our 20-mile hike, carrying two guns apiece for half the distance, and that following a long day of paddling and portaging, we more or less collapsed on Temascon's doorstep at 3 a.m. He helped us into bed with only our shoes removed, and piled deer skins on us. We were dead to the world immediately, and he roused us only with difficulty at 7 a.m.

That was my last experience of hunting, not because of the hardships, which we enjoyed in retrospect, but because I became too much interested in plans for the future to want to spend

time that way. What taste for shooting I may have had was thoroughly cured by the First Great War. I have never fired a gun since.

I was then aged 16, and had begun to have doubts about farming, at least on our scale, as a way of making a living. The prairies had begun to open up, and for awhile I turned my thoughts in that direction. But I soon realized that without capital for a substantial enterprise the situation there would not be greatly different from that at Flaisance. Some other trade or profession might hold more promise. I had given up, albeit reluctantly, the dream of every boy of that period, of becoming a locomotive engineer! Nowadays, with the disappearance of the steam locomotive, the romance had gone out of railroading, and boys dream instead of driving a high-powered motor car or a jet plane. But engineering of another sort still had an appeal. I had shared with real enjoyment in designing and building our house, in running crude surveys, erecting fences and small bridges, developing small drainage schemes. Why not aim to do such things on a big scale? I sent for the calendar of the McGill University Faculty of Engineering, and planned to prepare myself to write the matriculation examinations.

By this time my father was becoming alarmed. He sent me that winter to take a two-week short course at the Ontario Agricultural College, in the hope of stimulating new interest, and held out a prospect of taking the regular degree course later. I did become interested, and repeated the same course the following winter. That winter also I spent two hours each morning coaching my two younger brothers for entrance to high

school. They studied at home instead of continuing attendance at the North Nation Mills school. To the great pleasure of the whole family, they came first and second in the regional examinations at Lachute the following June. That gave me a taste of the satisfaction of teaching, and I began to dream of becoming a professor.

My older sister, Margaret, had likewise felt the stirrings of ambition. She went school-teaching for a year in the nearby hamlet of Ste. Amedée, then completed her matriculation at Vankleek Hill, Ontario, with top marks in that province, and the next year obtained a teaching certificate from the Toronto Normal School. All this disturbed my father profoundly; he regarded it as in a sense a breach of the contract implicit in our move to the farm, to run it as a family enterprise. My mother, as usual with mothers, thought only of her children's welfare, and cheerfully undertook any extra burden that might aid in their progress. Eventually my father came round, too, especially when my sister, after teaching in Lachine, Quebec, to earn money, and taking first-year university work at MacMaster's, changed over to the degree course in agriculture at Macdonald College. By this time the whole family was definitely pointed towards agriculture, and my father was blissfully happy.

My younger^{sister,} Dorothy, set a record in the age at which she clearly charted her professional career. "The Farmer's Advocate," a weekly published in London, Ontario, announced a garden competition for its junior readers. Dorothy, then aged 11 years, entered this competition, and at the end of the season submitted the required essay, illustrated by photographs. Though she was

competing with considerably older children, she was runner-up for first place. Her essay showed acute powers of observation and real ability in writing, for example, in describing the actions of the bees in pollinating the flowers. The season's experience decided her to become a botanist, and it was not long before she was in correspondence with Miss Faith Fyles, of the Botanical Division at Ottawa, who gave her generous help, even to visiting Plaisance for a joint botanical excursion. Dorothy's love of all living creatures was too great to permit exclusive devotion to plants. At Plaisance she lavished special affection on her Shetland pony, Beauty, which she drove or rode to school; also on our dog, Watch, and her canary, Dickie. Thus she almost necessarily developed into a field naturalist, a species now almost extinct.

"The Farmer's Advocate," then under the able editorship of W.D. Albright, was an important influence in my education. It was brought to our attention by Gordon Lamb, a farmer at Treadwell, Ontario, just across the Ottawa River from us. He had trained as a Baptist minister, but turned from that to farming, perhaps because of the conclusion he confided to us the first time he came to North Nation Mills as a substitute preacher, that preaching is mostly "spent wind." Isolated as he was in a solidly French, Catholic community, he had comparatively little opportunity for the direct social work he tried to substitute for formal preaching. But he did his best to demonstrate scientific farming, and shared his knowledge and good will with summer students he brought in, two from India one summer. We exchanged visits occasionally, ferrying across the river in a boat lent to

us by a Mr. Schryer, a completely Frenchified man of Dutch origin. Such instances of assimilation are common in Quebec, especially of families with Scottish names, probably descendents of Fraser's Highlanders, demobilized locally after the taking of Quebec in 1759. In winter, of course, we drove across the river on the ice. Mr. Lamb was inclined to be a food faddist. We cooperated with him in buying wholesale quantities of such items as dried prunes and apricots, and honey. However, we seldom lacked a varied diet of our own products, fresh in summer, home-canned vegetables and fruits and frozen meats in winter, oatmeal porridge for breakfast, and milk to drink at all meals. An itinerant butcher helped out in summer, and there was always the poultry yard to draw upon. Our French neighbours leaned more heavily on the traditional Quebec fare of salt pork and beans, pea soup, and raisin pie.

Mr. Lamb did us a good turn when he recommended "The Farmer's Advocate". Its various departments promoted a well-rounded rural education, from veterinary science to literature. Its contributors included several of the men I ~~had~~ met and heard in the short courses at the Ontario Agricultural College. I read it weekly from cover to cover, advertisements and all. Through its "literary society" I had my first serious introduction to Browning and Wordsworth. To test the efficacy of the farming methods he advocated, the editor established a farm, "Weldwood", not far from London, and faithfully recorded all results, good and bad. Later Mr. Albright gave up the editorship to go farming on his own at Beaverlodge, in the Peace River district of Alberta. It is scarcely surprising ~~that~~ his farm became such

an important demonstration centre that it was taken over eventually by the Federal Department of Agriculture as an experimental station, with Mr. Albright as superintendent. In 1946, I had the great pleasure of presenting Mr. Albright's name to the Chancellor of the University of Alberta for the honorary degree of Doctor of Laws.

Memories of my father during that second period at Plaisance include his reading to us at noon, before we left the dinner table, the daily instalment of "The Man from Glengarry" and other stories by Ralph Connor, as they appeared serially in "The Montreal Star". There was a genuine earthiness in these stories that appealed to people on the land. In different vein, but perhaps even more exhilarating, were Stephen Leacock's "Sunshine Sketches of a Little Town", which my father read us from the same source. Then every New Year's Eve he would spend in the home of Mr. Grenier, secretary-treasurer of the municipality, auditing the books. Skilled bookkeepers were rare in the country, and my father's services were highly appreciated. We were always amused, when he brought home a sheet of the official letterhead, to read the full name printed thereon: Municipalité du Coeur Très Pur de la Bienheureuse Vierge Marie de Plaisance. Modern alphabetical designations were nothing new to us. We were accustomed to seeing official documents justifiably dated from Municipalité du C.T.P. de la B.V.M. de Plaisance.

At the end of September, 1908, my father drove me to the station in the buckboard, with my trunk tied on behind and Queen II in the shafts. We were wearing the high-crowned bowler hats then fashionable, which now look very quaint in the snapshot of the occasion. Macdonald College was my destination.

Chapter IV

MACDONALD COLLEGE

For two winters in succession, 1905-6 and 1906-7, I had attended two-week short courses in stock and seed judging at the Ontario Agricultural College, Guelph, and was all set to enter the degree course in the fall of 1907, when the announcement came of the establishment of Macdonald College, with Dr. James W. Robertson as principal. Because of delays in construction it did not open until November, 1907, and on the advice of my father I postponed entry until 1908. He felt that the course would probably be better after the institution had a year in which to shake down.

At that time there were no formal entrance requirements. Though we wrote a preliminary examination on our first day there, its purpose was to assess our educational status rather than to act as a bar. Moreover the diploma course was then practically identical with the first two years of the degree course. Thus we were a very mixed lot, both in purpose and in preparation. One of my classmates was an Oxford M.A., while a few at the other extreme had only elementary schooling. All this, of course, has long since changed. Technology has overtaken agriculture. Not only must college entrants now be ready for rigorous training in the basic sciences, but in college they must be taught the art of continuous learning, in order to keep up with the rate of change in their profession. But in its time the open-door policy of agricultural colleges served a useful purpose. Some students who would have been excluded by formal academic requirements have abundantly justified the

opportunity it afforded.

I know of no more brilliant example of successful self-education than James Wilson Robertson himself. Son of a Scottish crofter, his father could well have been the model for J.M. Barrie's crofter in "Mary Rose", who thought the grandest thing in the world was education. That old question that bothered the Jews, "How knoweth this man letters, having never learned?" still bothers some people, for example, those who maintain that Shakespeare could not have written Shakespeare. We are prone to think of learning as obtainable only by formal schooling. For most of us this may be true, but the wind of inspiration bloweth where it listeth. There is no accounting for genius.

Some years ago I lent a professor of Classics a copy of Robertson's address on "Conservation of Character", given ~~at~~ to the American Library Association at its 1912 Conference. He returned it with this memo attached: "Reading this address has been a rare and rich experience. It was like reading Homer. He must have been a wonderful man who composed it. I was particularly interested to note how much in advance of his time were his theories of elementary education."

This address is replete with expressions, direct or implied, of the leading motive of Robertson's lifelong activities. For example: "The fundamental occupations which engage the large majority of our people are farming, making homes, and teaching and training the young. The farm, the rural home, and the rural school together provide the opportunities and means of culture in forms which children and grown people can turn into power, —

power of knowledge, of action, and of character." The balance between rural and urban development has subsequently changed, but for the period in which he lived and wrote, Robertson's emphasis was correct.

In promoting his ideals for the enrichment of culture and character, Robertson was fortunate in having the support and cooperation of Sir William Macdonald, a wealthy business man of Montreal. This association of a great educationist and a great philanthropist began in 1887, and developed into what became known as the Macdonald-Robertson Movement.

By 1895 Robertson had advanced to the position of Commissioner of Agriculture and Dairying in the Dominion Department of Agriculture, and was free to direct his activities as he thought fit. It was natural enough that one of his early projects should be directed to the improvement of farm children and crops at one and the same time. Beginning with his own modest contribution of \$100 in 1899, the next year he asked and obtained from Macdonald \$10,000 to support for three years competitions in which the children selected and multiplied separately the best heads of grain they could find in their fathers' crops. The advantages of pure seed of superior varieties soon became so obvious as to stimulate the next step, the organization of the Canadian Seed Growers Association, in which the fathers themselves, and the children as they grew up, continued the same system of seed selection and multiplication. The product, if it passed careful inspection, was entitled to bear the registration certificate of the Association, when offered for sale at enhanced prices. Robertson was the founder-president of the organization,

and continued in that office for several years. In time he became honorary president, leaving the active presidency to prominent seed-growers, who still carry forward the good work.

Robertson had been professor of dairying in the Ontario Agricultural College 1886-90, and during the last two of these years also non-resident lecturer in dairying at Cornell University. On these campuses he saw new opportunities. With the backing of Macdonald, he selected eleven bright young school teachers from the five eastern provinces to be sent to the O.A.C., Cornell, and a few other American universities in 1902-03, for special training to fit them for leadership in establishing rural consolidated schools and in introducing manual training, nature study, and school gardens. Two of these, E.A. Howes and John Brittain, will appear later in my story, but here I shall mention that Howes became first principal of the Macdonald Consolidated School on the campus of the O.A.C., and later first dean of the Faculty of Agriculture in the University of Alberta. Another of the group, John Wesley Gibson, was a near neighbour of mine on Fairmont Avenue, Ottawa, during the year I lived there, and was a frequent and friendly partner at tennis. He was then science master in the Ottawa Normal School, but in 1914 moved to Victoria as director of agricultural education in the public and high schools of British Columbia.

To the first consolidated schools the pupils were brought in horse-drawn buses. The curriculum included new subjects, such as domestic science and nature study. Robertson stressed three points in the formation and conservation of character of children: "First, the achievement of joy through the processes

of labour as distinguished from its wages or other rewards. ... Secondly, the pleasure of working together for some end believed to be good for all. ... Thirdly, gladness through creative work whereby each individual strives to give expression to his own concepts of utility and beauty in concrete things as well as in words and other symbols." He adds, in the 1912 paper on "Conservation of Character" I have already cited, "Immobility in classes all day long is not goodness. ... Books furnish some of the food and stimulus to thought. But when these are not turned into service through action, they become so much cloying debris ~~on~~ upon vitality." This last sentiment harks back to the inspired motto he had placed on the arms of Macdonald College: MASTERY FOR SERVICE.

Mrs. John Hoodless, of Hamilton, Ontario, had secured the interest of Macdonald and Robertson in developing household science teaching in her city, and just after the turn of the century proposed the transfer of this activity to the campus of the Ontario Agricultural College. There they established the Macdonald Institute and Macdonald Hall, the former a school of household science and the latter a residence where farm girls might live while pursuing the course in home making.

It remained however for Macdonald College to mark the complete fulfilment of Robertson's vision, in which agriculture, household science, and teacher training were joined together in one group. Macdonald College was established as part of McGill University, though separated from the main campus by some twenty miles in order to secure adequate space. The McGill Normal School was transferred from Montreal to the Macdonald College

campus, where it became the School for Teachers.

In 1904 Robertson gave up his work for the Dominion Department of Agriculture to devote his full time to this consummation of the Macdonald-Robertson Movement. Sir William Macdonald purchased several adjoining farms at Ste Anne de Bellevue, and construction began in 1905. Dr. Leonard S. Klinck was appointed in charge of cereal husbandry that year, the first academic staff member on the scene. It is a pleasure to record that he is still (1962) active in his garden in West Vancouver, where he has resided since he retired from the presidency of the University of British Columbia in 1944. To him I am indebted for much information concerning early days at Macdonald College.

Sadly, it was in their crowning achievement that strains began to develop between these two star performers, Macdonald and Robertson. They were both strong-minded, pertinacious Scots, liable to inflexibility of opinion. Macdonald had broken with his father and left home at age 16, thereafter building his fortune by his own ability and drive. Robertson, the visionary, was also self-made, to a different pattern. Unerring in his judgment of what was right educationally, he made errors in practical matters, such as the amount of land required for an agricultural college and its associated experimental farm, and the cost of the buildings. Actually their first serious disagreement appeared to be over the continued financing of the consolidated school at Hillsboro, P.E.I., when the initial three-year period expired in 1908. Macdonald's disapproval of Robertson's action there carried over to some of the latter's doings at Macdonald College.

Though Macdonald bought at the outset more land for the college than Robertson recommended, and would have bought even more but for Robertson's insistence that his own estimate was adequate, it still proved necessary to add considerably more later on, at the urgent request of Professor Klinck and Professor G.S.H. Barton, representing the interests of field crops and live stock respectively. These additions were made after Robertson left, and Macdonald was sharply critical of ^{Robertson's} ~~Macdonald's~~ poor judgment. Naturally the price of land had gone up substantially with the advent of the college.

Then the first estimate of the cost of the buildings was \$750,000. This climbed inexorably to a million, then two millions, and finally three millions. To Macdonald's great credit it must be recorded that, though critical of mistakes in estimating costs, he refused to scamp the job in any way. When Robertson became alarmed at these rising figures, he suggested to Macdonald that ordinary glass be substituted for plate glass in all the windows. Macdonald as usual made little immediate comment. A day or two later he observed that the view from the windows was not very good then, giving as they did upon the disordered scene characteristic of large-scale building operations. But he hoped to see the grounds artistically laid out and planted, and would be sorry to have their beauty marred for students twenty years hence, by their having to view them through inferior glass. Keep the plate glass! Then Robertson suggested that the lavatories, and certain parts of the basements, such as the walls of the rooms housing the swimming pools, need not be finished in marble. Again Macdonald took time to consider,

then commented that the morals of youth had often been corrupted by obscene writing on lavatory walls. He hoped to minimize temptation towards such defacement and, in case it should ever occur, to insure that the walls could be easily cleaned.

Keep the marble!

In addition to bearing the cost of the land and buildings, Macdonald established at the outset an endowment fund of two million dollars, which he increased to three millions in 1913, and to a final total of four millions by bequest. It should be added that his benefactions were not limited to those inspired by Robertson. Land and buildings bearing his name on the main campus of McGill University also attest his generosity. Nor was his humane liberality restricted to helping education. On the way from his home to his office he customarily passed down St. Urbain Street. Noticing preparations for the construction of a large building, he stopped one day to ask the foreman what was projected. It was to be a maternity hospital, and Macdonald was shocked to learn that it would not be fireproof. He ascertained the name of the chairman of the hospital board, and invited him to call. Macdonald then inquired whether he had been correctly informed. The chairman explained that they had been unable to raise the money for a fireproof structure. Macdonald asked what was the difference in cost. It was rather a staggering sum, but the next day the chairman received a cheque for that amount.

Robertson had large ideas and they cost large sums to carry out. But the buildings and furnishings of the college, though substantial, were not ornate. Indeed, I formed the opinion then,

and have seen no reason to change it since, that a student exposed to such surroundings for a period of years must subconsciously absorb a sense of good taste. Robertson could not fairly be accused of extravagance, nor of lack of personal generosity. He spent considerable sums of his own money on the college. Despite liberal spending habits, he had the innate thrift of the true Scot. Not infrequently he enjoined us to be careful of college property, and not to waste hot water or light. On one occasion he told of visiting Lord and Lady Strathcona in their beautiful home on Dorchester Street, where King George V and Queen Mary (then Duke and Duchess of York) stayed during their visit to Montreal in 1901. Lady Strathcona showed Dr. Robertson over the house, and as they passed from room to room she was careful to turn off the lights behind them. This Robertson pointed out to us as an example of wise economy on the part of a person who had no need to count her pennies.

Yet Robertson himself did not hesitate to be liberal with light when he thought the circumstances warranted it. Against the advice of some of his staff, who thought it extravagant, he kept the general lighting of the campus and buildings going all night, in order that travellers on the two transcontinental railways which ran side by side through the property might realize that here was an institution of real importance. Nowadays, with our burgeoning populations, we consider such lighting to be good insurance against unwelcome intruders, but in those quieter times few people thought of this.

Robertson did not get on smoothly with all the members of his staff. The first professor of Animal Husbandry and the

first dean of the School for Teachers stayed only a short time. But in these cases certain personal traits on their part were at least as much to blame as any angularity on Robertson's part. Robertson was in fact greatly beloved by nearly all his staff. At a dinner he gave to faculty members and their wives, to announce his resignation, there was no dearth of tears.

Dr. Klinck himself admits that in his first year at Macdonald College he had real difficulty in getting along with Robertson. Klinck being the only member of the staff on hand that year, he inevitably became a sort of factotum. Robertson depended upon him to supervise the work of gangs of foreigners brought in for hand labour, for example, in various drainage projects. Robertson had an instinct, generally though not always reliable, for knowing where drains ought to go, and did not easily agree to modifications in his plans based on Klinck's more accurate surveys. In general, Robertson was insistent that everything be done exactly according to his directions, even when Klinck was sure there were better ways. Fortunately Robertson was often absent, and Klinck used these opportunities to make faster progress, for instance, by using a horse-drawn plow to fill drains after the tiles had been laid, instead of doing it laboriously by hand. On Robertson's return that time he inquired how such speed had been possible and, when informed, was very critical of the risk Klinck had run of damaging the tiles! Even in the matters of planning a cereal husbandry~~yy~~ barn and laying out experimental plots, where it should have been obvious that Klinck had superior knowledge and experience, Robertson insisted on his own plans and methods. He went along with Klinck to hold one end of the surveyor's

chain to make sure the cereal plots were laid out his way. But discomfiture followed quickly: the corner posts proved to be away out of line, and Robertson had to admit his way would not work.

Such actions of course revealed a serious defect in administrative talent. One of the prime attributes of a successful administrator is a well-developed capacity for delegating responsibility. Robertson's genius lay along other lines. But mutual respect and forbearance between Robertson and Klinck grew rapidly, and after that first trying year there was no more interference in the details of Klinck's work. Indeed, Robertson showed his appreciation by promoting Klinck formally to the rank of full professor in 1907.

Further to balance the account of his personal relations, let it be said that Robertson had an uncanny ability to manage labour, and even to settle strikes, of which there were two during the construction period. The second of these he killed by cabling for a supply of British artisans, who arrived by the next boat. This method might not work so well nowadays, when labour is more powerfully organized and prone to oppose such actions with violence. Incidentally, Robertson's good connections in the Old Country, and his first-hand inspections there, enabled him to introduce many good ideas, not hitherto known on this side, into the design and construction of the college buildings.

Robertson was not immune to the temptation that besets persons with the gift of words and a ready tongue — to speak too often and too long. "He could talk the birds off the bush," said Klinck. This pithy comment reflects also the persuasive

quality of Robertson's oratory, of which we students had frequent experience. It was not merely a case of wearing us down.

All this is merely to say that Robertson was human, that his greatness was seasoned with a share of human frailties. Those who are thrown into very close association with a great figure cannot help seeing its minor defects, and so are handicapped in assessing its over-all worth. We students were remote enough to escape the blurring of our perception by too much intimate detail.

One thing we knew which must have caused Robertson embarrassment. He had become convinced that smoking was a deleterious habit, and that he should discourage it among his students. Sir William Macdonald himself never used tobacco in any form, and even sent home a nephew he had been educating in Montreal because he indulged in the wasteful habit of smoking. But these things were not known to us then, and it seemed a delicate matter for the principal of a college built and endowed by a great merchant of tobacco to speak publicly against the use of that article. Robertson told us in general assembly that he himself was giving up smoking, and counselled us earnestly to refrain from developing the habit. He obviously had some difficulty in reconciling the use of profits from an industry thus condemned, to run his own institution. He sought, not too satisfactorily, to justify the means by the end. Of his sincerity he soon had opportunity to give proof. At a dinner in New York he declined a good cigar. When his neighbours at the table remonstrated, he told them of the undertaking he had given the students. "But the students are not here to see. Nobody will be the wiser. Why not enjoy

a good smoke?" But Robertson merely reiterated that so long as he had this understanding with the students, he would not smoke.

To the students Robertson gave no sign of the strains that were building up between him and Macdonald, and when we returned after the Christmas vacation of 1909-10 it was a shock to learn that Dr. and Mrs. Robertson had left Macdonald College, and that their beautiful home on the campus stood empty. We students in the Faculty of Agriculture sent them a letter of appreciation and regret, and received a reply worthy of the great man and his inimitable style. It ended, "The day is before you, we bid you Good Morning."

At the next Saturday evening reception in the gymnasium of the women's residence, the customary venue of such affairs, a girls' chorus sang a lament written for the occasion, "O Robertson," to the tune of "O Canada", which had become firmly associated with his name through its constant use at his noon assemblies. We were deeply moved. At the end of the song there was no applause, only a solemn hush.

Though the break seemed grievous at the time, it turned out well in the end. With the establishment of Macdonald College, fulfilling Robertson's dream of an institution ministering to the complete needs of the rural community — farm, home, and school — his primary educational mission was accomplished. Now he was free to assume leadership in related fields — the Royal Commission on Conservation, the Royal Commission on Industrial Training and Technical Education, the Dominion Education Association (president 1913-17), the Canadian Red Cross, the Boy Scout Movement. In all these his love for ~~the~~

people, his prophetic insight, and his inspirational qualities found fruitful expression.

Meanwhile, the first students at Macdonald College had the privilege of two and a half years at the feet of this latter-day Socrates. The first day after our arrival in the fall he began his 15-minute noon assemblies. The hall was equipped with a three-manual Casavant organ, and Robertson had seen to it that his staff included a competent organist. No other item in the equipment of the college had a more important influence on our general education. During Robertson's regime we were ushered in daily, Monday to Friday, by good organ music, and always ended with Judge R. Stanley Weir's new English version of "O Canada", destined to become the national anthem of English-speaking Canadians. At one of these assemblies, the speaker was Mr. Weir himself, then judge of the Recorder's Court in Montreal. In passing, I should mention his gifted son, Douglas Weir, who was a member of the biological staff, and a well-trained violinist. It was through his playing that I first gained an adequate conception of the resources of the violin. He was guest soloist at one of the Saturday afternoon organ recitals which we enjoyed both during Robertson's regime and afterwards. Visiting organists contributed to these recitals, especially Dr. H.C. Perrin, Director of the McGill Conservatory of Music. During one term, he gave us a series of recitals of J.S. Bach's preludes and fugues. Bach fugues have been my favourite organ music ever since.

Robertson himself was usually present at the Monday to Friday noon assemblies, but he shared the speaking with other members of the staff and with frequent visitors. One noon, our own Professor William Lochhead, of the department of biology, told us of the recent discovery of the Abbé Mendel's papers, buried for nigh on half a century. We were too inexperienced then to appreciate the full and exciting import of the news, which revolutionized the science of plant and animal breeding. Perhaps no other noon announcement quite equalled the unique significance of this one, but we did meet many important people with important messages.

Robertson's great personal prestige, as well as the interest attached to the launching of a unique institution, attracted many distinguished visitors. Principal Peterson, of McGill University, remarked at one of our assemblies, "Dr. Robertson is making McGill Macdonald," — a reference to the diversion of the tide of public interest from the main campus to the Macdonald campus. For all that he made the remark in jest, this situation may have contributed to the strain that was developing; but while the honeymoon lasted we profited.

One destined to rank among the greatest of our visitors, and even then becoming well-known, was Dr. Wilfrid Grenfell. He told us of the work he was doing among the fisher folk of northern Newfoundland and the Labrador coast. In fifteen minutes

he made such an impression that a prominent member of Class '11 (the first class to graduate from Macdonald College) later went to serve for awhile in the Grenfell Mission.

When the occasion warranted it, Robertson convened longer assemblies in the late afternoon or early evening. At one of these we listened to Governor Hoard, of Wisconsin, the founder of "Hoard's Dairyman". As a lad he had heard some of Abraham Lincoln's campaign speeches. He talked to us a full hour about Lincoln, and one could have heard a pin drop at any point in his address. He spoke of Lincoln's nervousness before speaking, how he would walk up and down behind the scenes wringing his hands and wiping the perspiration from his brow. (That early information has comforted me often in later years!) All that vanished when he faced his audience. In no time he had them sharing his enthusiasms and applauding his convictions, shouting, "Now you're talking, Abe," or, "You're mighty right, Abe," or roaring at his keenly humorous sallies and anecdotes.

Looking back, I realize that Lincoln had impressed his personality on the young Hoard in much the same way Robertson etched his own portrait on my youthful mind. Before him, I felt in the presence of a Superior Being, who moved in a rarefied atmosphere, suffused with an essence only he could distil. And yet I know it was not merely a young man's passing fancy. I listened with undiminished appreciation when he addressed a meeting on behalf of the Canadian Red Cross at Kingston in 1915, when I was training there with the Canadian Field Artillery. I met him by accident in the Third London General Hospital, Wandsworth, where I was recuperating and he

was visiting just after the Armistice of 1918. He invited me to his suite in Claridge's Hotel, where during dinner he talked of still unfulfilled ambitions, including a desire to see some reorganization of the Dominion Department of Agriculture to save it from the pitfalls of bureaucracy. "If I could achieve that," he said, "I should be ready to pray, 'Lord, now lettest Thou Thy servant depart in peace.'" His zeal was unabated and his spirit still infectious. Then about 1925 I heard him for the last time, when he addressed a group of Scoutmasters in Edmonton, in his capacity as Dominion Scout Commissioner. Again he wove his magical spell of lofty ideas couched in beautiful phraseology, which I was not alone in feeling.

Though I remember comparatively few of Robertson's sayings verbatim, a few, like the following examples, have stuck.

"To live is well, to love to live is better, to love to live to labour is best of all."

"I keep my soul on top" (an inversion of St. Paul's "I keep under my body").

To a teachers' convention he described experiments in feeding young pigs, in which was demonstrated the happy temperament of those fed on skim milk as compared with the quarrelsomeness of those ^{raised} ~~fed~~ on meat scraps. The conclusion regarding an appropriate diet for children was obvious. He went on to bring the admonition of Jesus sharply to the attention of the teachers by paraphrasing it thus:

"It were better for a teacher who does not love children that a millstone were hanged about his neck, and that he were drowned in the depth of the sea."

* * * * *

Dr. Robertson was succeeded as principal by Dr. F.C. Harrison, whom he had early appointed ^{to be} ~~as~~ professor of bacteriology, and who had earned his esteem and gratitude by his ability and skill in planning and specifying classroom and laboratory equipment for the entire college. But "what can the man do that cometh after the king?" To add to his difficulties, Harrison had not the gift of winning the friendship, much less the love, of the students. We respected his ability. His lectures were models of clear exposition. His demonstrations were marked by elegant technique. After watching him at work, one was not surprised to learn that his hobby was painting; he had the hands of an artist. But in personality he too often displayed the cold aloofness we sometimes associate unfairly with English aristocracy. He really did not enjoy the principalship, and was happy when an opportunity came several years later to move to the chair of bacteriology on the main campus of McGill University, where he could devote himself to his real forte, training bacteriologists.

It was natural that many of the staff of Macdonald College should have been drawn from the Ontario Agricultural College, the pioneer Canadian institution in agricultural education. Harrison had been on the staff there, and Klinck was a graduate, though subsequently on the staff of the Iowa State College at Ames before coming to Macdonald College.

From the first day we met him, Dr. Leonard S. Klinck impressed upon us indelibly his character of care, exactness, system, and thoroughness. In one of the early issues of our student magazine there was a column headed, "Things we never

expect to see," which began with, "Professor Klinck with his tie awry." Once or twice in our first year, when he was called away to other duties, he left a student named Garnet LeLacheur, who had been with him a couple of years, to lecture to us from the professor's notes. LeLacheur gave us detailed directions how to take and arrange our own notes, based on the model before him, even to how many times to underline various headings and subheadings. It was a case of outdoing his master!

Early in my first summer in Klinck's department, he handed me to proofread three copies of an address he had prepared. Naturally that put me on my mettle, and as I had never seen a carbon copy before, I laboriously read through each copy separately with a meticulous care worthy of the professor himself. He must have thought me painfully slow at the job, but made no comment.

Needless to say, Klinck's plots were laid out with a surveying instrument, and were dead straight. The white-painted stakes which marked the corners of each plot were of such good quality as at first to provoke some criticism from the authorities, but they soon learned that here was a man who knew his business and was not to be trifled with in carrying it out. By good fortune, or perhaps inevitably in the circumstances, a Scottish plow-boy named Jimmy Coull turned up, who could plow a furrow as straight as Klinck's eye. He was a treasure in the department for many years. Since my own schooling with Klinck, I have never been able to abide anything that looks crooked. It is a pleasure still to see the straight margins of Dr. Klinck's lawns in West Vancouver, over half-a-century later.

As summer employees in Klinck's department, we students

worked the hours then customary: 7 a.m. to 6 p.m. weekdays, with an hour off for lunch, and 7 a.m. to 1 p.m. Saturdays. We were paid 13 ~~cants~~ an hour, as compared with 15 cents for the regular help, the difference being justified by our assignment to tasks with some educational value. To put these rates in perspective, I should mention that my total expenses for room, board, laundry, books, and incidentals in my first year were \$159. Tuition was free. In the summer following my third year, when I was much occupied with work for the Macdonald College Magazine, a student quarterly, and also with experimental work for the bachelor's thesis then required, Klinck gave me a free hand to use for his department whatever time I had available, in making a collection of forage plants, chiefly grasses and clovers, and mounting typical specimens in Riker mounts.

Robert Summerby, a student a year senior to me, was foreman of the student group. He was a big, solidly built fellow, and when someone remarked on this once to Klinck, the latter added, "And all solid gold." Soon after Klinck moved to British Columbia in 1914, Summerby filled his place at Macdonald College. Meanwhile we thoroughly enjoyed our association with this big-hearted, super-conscientious, delightfully teasable lad. On one occasion he and I undertook to poison the sparrows which were attacking our ripening grain plots and vitiating the experimental results. We soaked some wheat in a solution of strychnine and scattered it around the margins of the plots. We killed the sparrows all right, but did not stop there. About 200 yards away was an old stone quarry partly filled with water, which the poultry department was using as a duck pond. The 36

handsome ducks had never before been known to leave the immediate vicinity of the pond, but chose that very night to make an extended excursion -- with dire results. Most of them made it back to the pond, and floated there like over-size water-lilies. A few died on the way. Summerby had the terrible responsibility of breaking the news to Klinck. The latter merely leaned back in his chair and laughed heartily. Fred C. Elford, professor of poultry husbandry, was a prince of good nature, too, and never showed the annoyance and disappointment he must have felt.

During my last year at Macdonald College, W.P. Fraser joined the department of biology to teach plant pathology. My class had little contact with him, and at that time formed no high opinion of him. That merely showed how wrong students can sometimes be in their judgment. Fraser was not a fluent lecturer; his genius lay in teaching and inspiring specialist students who worked closely with him. A list of his students would include a virtual roster of the plant pathologists who led the battle against that No. 1 scourge of the prairies, wheat stem rust. This campaign began in the summers of 1917 and 1918, which he spent in the west, on loan to the Federal Department of Agriculture. Early in 1919 he was appointed officer in charge of the newly established federal laboratory of plant ~~plant~~ pathology at Saskatoon. Later he continued his attack on rusts and other plant diseases as professor of plant pathology in the University of Saskatchewan. His hobby was plant classification, and I enjoyed a number of botanical excursions in his company. An excessively shy and modest man, he refused nomination to the Royal Society of Canada and refused an honorary degree until his retirement. He was honored

nevertheless by those who had the wit to recognize his worth.

Dr. John Brittain, who came from New Brunswick to teach nature study at Macdonald College, was a strong influence in my freshman year. His course was an amalgam of geology, chemistry, and botany. He was a born teacher if ever there was one. Years later I met the professor of chemistry of the University of Oklahoma, who remarked in conversation that he had never found chemistry difficult, because he had been grounded in the subject by Dr. John Brittain. At the end of my second year Brittain advised me earnestly to specialize in chemistry. "You could get anywhere in chemistry." Apparently I had inherited some of my father's flair for the subject. Actually I stayed with my original choice of cereal husbandry, but my bachelor's thesis had a distinctly chemical flavour.

W. Saxby Blair, the first professor of horticulture, was not only competent in that subject but also in landscape architecture. He deserves to be remembered with honour by many generations of students for the beauty of the campus which he laid out and planted. Sir William Macdonald's insistence on plate glass windows, giving a clear view of what he hoped would become attractive grounds, was fully justified by Blair's achievement.

Of extra-curricular influences, perhaps none was stronger than the Sunday services held in the assembly hall. At first these were held in the afternoons, with Dr. Robertson himself as occasional speaker. In my second year, the college staff and English-speaking residents of Ste Anne organized regular church

services, bringing in a different visiting preacher each Sunday. Among our favourites were Dr. Herridge, of St. Andrew's, Ottawa, who thrilled our easily rebellious young minds with his "Apology for Doubters", and Dr. Barclay, of St. Paul's, Montreal, who preached an especially memorable sermon on the text, "^{Ephraim}~~Israel~~ is a cake half baked." These were pulpit orators of the first rank. In Dr. Barclay's case, the effect was enhanced by his patriarchal beard and rich bass voice. Dr. Herridge was a man of parts: on one occasion at the end of the service he treated us to a short organ recital of a quality which added lustre to his preaching. We looked forward to the annual visits of these two men, and made their sermons the subject of critical conversation during the following week. Mrs. Klinck and her brother, Irvine McDougall, were the mainstay of the choir during the first year of these organized services. For the last two years of my sojourn there we had a Welsh tenor, J. Gabriel Rhys, as choir director, and in the last year, ^aMr. Barker as organist. These were really good musicians, and my musical education was advanced substantially by membership in the choir these two years.

Another musical influence was the college orchestra, in which I played second violin for three years. The first of these we had Douglas Weir, violinist, as leader, and the next two years one of my class-mates, Narcisse Savoie, a cornetist. Since most of our music was of a light popular kind, we had good practice and good fun rather than good education. Besides Weir, the only faculty member who helped us was Dr. ^{W.D.}Macfarlane, ^{lecturer in English,} who was our sol^o cellist and never missed a rehearsal.

Mr. Weir was our faculty adviser for the biggest social

affair the men students attempted in my first year, and which became an annual feature, the "Mi-Carême Bal Masqué." The name itself is a commentary on the times. The only convenient date for the masquerade fell in Lent, and we were fearful of offending the sensibilities of the community by staging it then. Mr. Weir remembered an old French custom of relaxing the seasonal austerity for one day at the half-way point, hence the name and date we selected.* The event caused no adverse comment, and thereafter

*(Footnote)

Much later I was to learn that mid-Lent was a time of carnival in 18th century Spain, and was the subject of two of Goya's famous paintings, Parten la vieja and Mitad de Cuaresma.

we took no trouble about the name or the exact date.

On that occasion we dressed of course in costumes as grotesque and unique as we could contrive or obtain. But for all other receptions and dances we wore our regular Sunday suits. The idea of tuxedos or evening dress never occurred to us, though nowadays they seem de rigueur even for high school functions.

Our rising bell on regular week-days rang at 6:45 a.m., with breakfast at 7:30 and lectures at 8:30. Some city-bred boys grumbled at the early hours, but I, who had been used to getting up at 5 a.m. on the farm, found them late. But I soon became adjusted! The three schools -- agriculture, household science, teachers -- all ate together in one large dining-room. Seating lists were posted, and changed every two weeks, so that we gradually became acquainted with almost everybody there. We had some other activities in common, such as the College Literary and Debating Society. It was undoubtedly a valuable social experience,

though perhaps not altogether good for the boys to be outnumbered by the girls two to one. In those days most of the girls stayed only one or two years, thus further increasing the number of acquaintances for the boys, most of whom stayed four years. In the men's residence we soon became one big family, profiting by the many advantages of a completely residential college, though it took maturer years to teach us full appreciation of these.

One important experience I shared with two of my college mates and with delegates from many other institutions - the quadrennial convention of the Students' Volunteer Movement, in Rochester, New York, during the Christmas vacation of 1909-10. There we met and listened to many world leaders on the general theme of "The evangelization of the world in this generation." I remember a Chinese speaker beginning his address thus: "If China is to be evangelized in this generation, it must be done by the Chinese people themselves." This now appears a self-evident truth, but to that enthusiastic gathering nothing was impossible. Towering over all the speakers was John R. Mott, World Secretary of the Y.M.C.A., who presided over the convention. Such was the force of his character and personality, that those closely associated with him tended to take on even his mannerisms in speaking, much as we have seen the associates of Sir Winston Churchill echo his sonorous periods. Even today, in reading the Scriptures, not seldom do I find myself using the unique emphases of John R. Mott. When Hon. James Bryce (later Lord Bryce), the British ambassador to the United States, spoke

to us, Dr. Mott introduced him as "an ambassador of Jesus Christ." Thirty-five years later I had the privilege of introducing Dr. Mott in similar terms to a gathering of University of Alberta students. James W. Robertson and John R. Mott had this in common, that no one who came under the influence of either was ever quite the same again.

Discharging a Family Debt

Probably no family is more indebted to Macdonald ~~than~~ College than my own. All five of us graduated there: I in 1912, William in 1914, John Dawson in 1917, Margaret in 1918, and Dorothy Elizabeth in 1921. Our parents moved to Ste Anne for the period 1913-16, and again for 1918-23, after which my father retired and they moved to Edmonton. Thus all but me were able to live at home during part of their course. Our parents lived only three years in Edmonton, whither they had gone to be near two of their sons but where the climate was a little severe at their age. In 1926 they made their last move, to Victoria, where they both died in 1928.

As will be seen presently, our careers after graduation were diversified enough, but united by allegiance to a common alma mater and common service to people who live close to nature.

After war service in France, preceded and followed by short periods with the British Columbia Department of Agriculture, William studied for his doctorate in plant physiology at the University of California, receiving this degree in 1923. He remained in California five years longer, first as assistant professor of botany at Pomona College, then as research associate

at the photosynthesis laboratory of the Carnegie Institution of Washington, Carmel, and finally as assistant professor of botany at the University of California. When his family began to come along he felt a desire to bring them up Canadian, and returned to British Columbia as plant pathologist with the Federal Department of Agriculture. He was in charge of the laboratory of plant pathology at Saanichton from its inception till his retirement in 1958. Towards the end he spent a year in Ceylon on work for the Food and Agriculture Organization of the United Nations. Scientifically he made his reputation for work on virus and nematode diseases of plants, particularly those affecting bulb crops. After starting the bulb work fruitfully, he left it mainly to his assistants to carry on. His initiative and progress with the virus research prompted the Federal Department of Agriculture to send him to Britain in 1935 for a year as exchange plant pathologist. There he divided his time between Cambridge and Rothamsted. At home he was known throughout British Columbia as an authoritative and willing guide to the farmers in dealing with all kinds of plant disorders. Possessed of a winning personality, William's special gift for popularity may be illustrated by an incident at the time of his marriage shortly after the First Great War. A Victoria newspaper carried on its front page this box notice: BILL'S MARRIED. No further identification was necessary! Even more than the rest of us, William is a child of nature, loving the outdoors. As a teen-ager on the farm he built himself a rude bunk of cedar fence rails, in which he slept under the open skies in any reasonable weather. Now in retirement on a 9-acre, heavily wooded lot overlooking

Swartz Bay and the inner islands of the Gulf of Georgia, he readily forsakes his comfortable house in favour of a hut he has built for himself in the deep woods. Bricks for the fireplace and glass windows were the only materials he did not find on his own place. The chimney is of stone, ^{the} mortar of his own contriving with local clay and only a trace of cement. Shakes for the roof he split from blocks of cedar. The cedar bark he used to chink the log walls. Henry David Thoreau could scarcely have done better. And no sooner was this hut complete than he started on another, all of stone, further to satisfy his urge to build with native materials. He is still in great demand as a popular speaker, much as he would prefer to devote himself to his other hobbies of wood-carving, gardening, collecting native plants, and fishing with his grandchildren.

John was frustrated in his desire to enlist for active service by strong official pressure to maintain or increase agricultural production. War-time labour conditions were such that, in addition to attending college in winter, he had for three years to run the farm with the help only of my mother and capable Aunt Rachel (cf. p. 43). In 1918 the farm was sold and he joined the staff of the University of British Columbia, on advice that he would be doing more good by helping to relieve the root and vegetable seed situation -- the supply from Europe being cut off -- than by enlisting. Two years later he proceeded to the University of California, where he earned a doctorate in plant nutrition and biochemistry. Apart from a sabbatical year at Rothamsted, with a scholarship from the Universities Bureau of the British Empire, and two recent periods of one-and-a-half and two years respectively,

with the Food and Agriculture Organization in Indonesia, he spent the whole of his professional career at the University of Alberta, where he headed the Soils department during the latter part of his service. In Alberta he devoted himself especially to soil surveys, soil microbiology, and problems in the fertility of wooded soils, which make up so much of the agricultural land of the province. At least as important as his scientific contributions is the distinguished list of graduates from his teaching who now occupy important posts in many parts of the world — heads of university departments, senior officers of departments of agriculture and of the Food and Agriculture Organization of the United Nations, and of other institutions. As vice-president of the Soil Biology Commission of the International Soil Science Society, he was Canada's representative at the soils congress in the Congo in 1954. He retired officially, though not in fact, on his return from Indonesia in 1961, and has just moved (1962) to a secluded spot on the west coast, where he hopes to have time to analyse and write up numerous data still unpublished, ^{also to cultivate his hobby of portrait painting,} as well as entertain his grandchildren in holiday periods.

Margaret had a delayed start with her professional education, largely because of my father's initial conservatism in regard to higher education for women. Happily he lived long enough to be proud of the budding professional careers of both his daughters. Still, Margaret was one of the first two women students in Canada to enter agriculture, and had some trouble persuading the college authorities that it was appropriate for her to do so. She wisely chose plant pathology as her specialty, and had the inestimable privilege of working under the guidance of Professor W.P. Fraser.

When Fraser went to the prairies for the summer of 1917, he left Margaret to look after his grass rust collection, and to make single-spore cultures from the rusted wheat specimens he sent her from the west. She found that spores from one of these specimens would infect Marquis wheat seedlings, while those from another specimen would not do so. Thus was revealed for the first time in Canada the baffling problem posed by rust strains which appeared identical but differed in their infection capabilities. The next summer, by Fraser's arrangement, she spent in Manitoba, studying the inter-relationships of grain and grass rusts, the spread of rust spores from barberry bushes, and the time of arrival of wind-borne spores from the south. When she reached Winnipeg that spring, she was met by Professor Fraser, who took her to the Royal Alexandra hotel. Margaret, who had never registered in a hotel before, was thrown off balance by the clerk's brisk inquiry, "With or without?" Rallying, she cautiously hazarded, "Without", only to discover later that she had deprived herself of a private bathroom!

After obtaining a master's degree from McGill University in 1919 with the help of a studentship from the National Research Council, Margaret moved to the University of Saskatchewan. There for three ^{years} ~~summers~~ she continued rust studies and checked the reactions of wheat hybrids produced by her new chief, Dr. W.P. Thompson, another distinguished pioneer in the application of science to the solution of the rust problem. ^{About half of each year she} ~~The winters she~~ spent at the University of Minnesota, studying for her doctorate under Dr. E.C. Stakman, who was then becoming the leading American authority on physiologic races of rust. Margaret in turn became

the leading Canadian authority in this field. In 1925, after three years as associate professor of biology in Thompson's department at Saskatoon, she joined the newly established Dominion Rust Research Laboratory in Winnipeg. There her work became an indispensable guide to plant breeders in producing wheat varieties resistant to all the forms of rust. For this work she was elected a fellow of the Royal Society of Canada in 1942, and received the Flavelle gold medal in 1948. The University of Minnesota, which is located in a region where cereal rusts are prevalent, conferred on her its Outstanding Achievement award and gold medal in 1956. Meanwhile she had visited Russia in 1933, on the invitation of Academician Nikolai Vavilov (later liquidated!), and had given there a series of lectures based on Canadian rust research. Now living in retirement in Victoria, Margaret has been active there in various women's organizations. Her garden is a model of well-kept beauty.

And here is a "stop press" item: On July 16, 1964, Margaret was asked by the University of Victoria to let them name one of two women's residences nearing completion, the Margaret Newton Hall. ~~The letter of confirmation read~~ The other was to be named the Emily Carr Hall. The letter of confirmation read: "The University of Victoria is very happy to honour in this way two distinguished Canadians, one in the arts and one in the sciences."

Dorothy's first scientific paper, as a new graduate student working at Macdonald College under F. C. Harrison, with the help of a National Research Council Studentship, dealt with a problem of discoloration in canned lobster then troubling east coast operators. She found the solution required the introduction

of steam-pressure sterilizers to kill the spore-forming bacteria. For this work she received a master's degree in 1922. Then she engaged in researches on fungi at the University of Manitoba under that slightly eccentric mycological genius, A.H. Reginald Buller, F.R.S. Of him, more later! In Manitoba Dorothy held for two years the Hudson's Bay Company fellowship. She obtained her doctorate, and published three papers on sex in higher fungi, which brought out features helpful in the identification and classification of various species and strains. Before joining the staff of Macdonald College, she taught a year in the high school of Victoria, B.C., spent a year at the University of British Columbia as assistant to Professor John Davidson, who developed the botanical garden there, and had a year of study in Europe. Her early work at Macdonald College included collaboration in a survey of Quebec pasture lands and in the preparation of a bulletin on the identification of grasses by their vegetative characters. This bulletin proved a continuing "best seller", not only on this continent but also in Europe. An important by-product of this survey was the building up of the Macdonald College herbarium: Dorothy collected the first specimens herself, then became responsible for identifying or checking and mounting hundreds of others collected by field workers who followed her. Her professional career ended "officially" in 1934, when she married Dr. William E. Swales, of the Institute of Parasitology at Macdonald College, though naturally her special skill in plant identification was still in demand and freely given. With her husband she also made a study of birds, which in time became a major interest. Her husband's distinguished career ended all

too soon, and Dorothy was left a widow to bring up a young son, now a medical graduate of McGill University. She still helps the college, for the most part voluntarily, but is officially Curator of the Macdonald College Herbarium. ~~Shaxxtiti~~ This she continues to build up, her own hobby being Arctic and sub-Arctic collections, some of these made personally during extended visits to Churchill, Manitoba, Frobisher Bay on Baffin Island, and Inuvik at the mouth of the Mackenzie River. At Frobisher Bay young Eskimo children playing in the water at 37°F. with an air temperature of 45°F. assured her that they were not cold. Darwin would certainly have made a note of this instance of adaptation. Other Eskimo youngsters there soon appointed themselves Dorothy's collecting assistants, readily taking her hand as they walked along. This astonished the local R.C.M.P. people, as Eskimo children there are usually very shy of whites. But Dorothy's home at Ste Anne de Bellevue is a rendezvous for students of all nations. One Hindu brought his new bride to introduce her to their "Canadian mother". Nowadays Dorothy has *almost as many calls* ~~even more numerous calls~~ to identify birds ^{as} ~~than~~ plants: she leads many bird-watching excursions, and her periodic articles on bird visitors delight readers of the "Montreal Star".

The most important gift of Macdonald College to me personally was a wife! I was attracted by the vivacious charm, academic brilliance, and artistic talents of Emma Florence Read, who took the teachers' course in 1911-12. She was the daughter of Rev. Francis Winter Read, McGill Arts '88, and Annie Williams, McGill Arts '90, who as newlyweds went to Angola as Congregational missionaries. In those days, the trek from the coast to their

mission station took 27 days, with no wheeled transport but everything carried by natives, the women and children in hammocks slung on poles, along narrow paths worn deep by generations of barefoot native caravans. Groceries and other supplies from outside came in only twice a year. Naturally they grew as much as possible of their own food. Housing they built for themselves. Ten years later, when my wife and her twin sister were eight years old, they came out for the first time. His health depleted by this long and arduous spell in the tropics, her father did not survive to return there after his furlough, and her mother was left to support and bring up six children entirely by her own efforts, in the city of Montreal. This background necessarily had a profound ^{influence} ~~effect~~ on the family.

Emma achieved not only the top academic record in her class at Macdonald College, but made so many contributions to student life, including the writing of college songs, performing as piano soloist and accompanist, acting and competing in literary society programs, that the Principal gave her a special prize for "general helpfulness". She taught school for two years in Montreal before we were married.

In many respects we have been a strangely contrasting pair. I am rather Laodicean, Emma is a live coal. I am naturally so conservative -- if not always so in politics! -- that my pace of progress may not always match the need of the hour: she so radical as sometimes to act almost too fast. I inclined to be parsimonious, she so open-handed she often reminded me of Prue, in Mary Webb's "The Precious Bane", who liked seed-time better than harvest because the sower going forth to sow, with his sack of seed

slung over his left shoulder, used his right hand to scatter the seed "with a great giving motion." I am by nature reticent and self-contained, Emma bubbles over and enjoys listeners; I am satisfied to live with my thoughts and more or less indifferent to externals, she is extremely sensitive to her surroundings; I am loath to move as it disturbs the even tenor of my way, her eager spirit requires periodic changes of environment; I am inclined to let people go their own way, she with the missionary instinct in her blood is a natural crusader for what she believes to be right.

These contrasts became more obvious when, much later, she dropped her music to devote herself to her work as a practitioner and teacher of Christian Science. Music had been a strong mutual interest. She had shown great promise both as performer and composer, and I took great pride in her accomplishments. Other artistic talents now pushed mainly into the background she had also expressed in pottery, sketching, poetry, interior decorating, and in designing dresses and hats. Our home has always been a thing of beauty and colour. Most of the paintings and art objects she had collected we left with the University of Alberta on my retirement, but our town flat and our country cottage are still amply supplied, the cottage with several new creations based on objects thrown up by the sea and spotted by her quick eye. Fortunately our common interest in language, which broadened as we grew older, helped to fill the gap in music. The latter was not a complete gap, as we both took up violin playing — to her a new instrument, to me a renewal after a lapse of 40 years — and we enjoy playing hymns and simple tunes together quite regularly.

For all the contrasts, she has been good for me — good discipline, and an active leavening influence. She has a wonderful and consistent appreciation of beauty; she never takes anything beautiful for granted, even if it is a scene she has looked on a hundred times before. This begot in me an answering awareness. The importance of this was often brought home to me, perhaps never more than on one occasion when I was driving home to Ottawa from a meeting at Macdonald College, in company with three senior officials of the Federal Government service. A magnificent sunset built up to a climax as we reached Chute à Blondeau. Mountainous clouds of red and gold piled up in the west, indeed the whole sky was ablaze with colour, enhanced at that point by reflections in the Ottawa River. Yet the company continued its chit-chat, seemingly oblivious of the glory that surrounded us. when I ventured to call ^{ent}at~~tion~~ to the scene I met no response.

Similarity of temperament and interest is, of course, no guarantee of happiness and satisfaction. It may lead only to inactivity and unprogressiveness, a ~~jellyfish~~ jelly-fish type of existence. Challenge, if met intelligently, brings desirable response. Our life together has been active, full of varied interests, with enough achievement to sustain an optimistic outlook, and with a deeper happiness won by mutual consideration and reasonable adjustment.

Chapter V

FIRST FLIGHTS

In those days there were few scholarships available for advanced study, and most graduates, however much or little financial help they might have received from their fathers up to that point — I had received much — now found themselves entirely on their own. Like the other fledglings, I had to try my wings.

Shawville

On graduating in 1912, I was one of four members of my class appointed to be "district demonstrators" of Macdonald College. Such officers are also variously known as "district representatives" (Ontario), "district agriculturists" (western Canada), and "county agents" (U.S.A.). Their job is to bring the college to the farmer, as far as this can be done. Vocational education for farmers' sons and daughters was the original object of agricultural colleges. But only a few of these young folks came to the colleges as regular students. How to reach the others, and their fathers and mothers? Graduates began to be placed at strategic points to act as distributing centres for the information and help which the colleges and their associated experimental stations had available. One of the first graduating class of Macdonald College was sent out on this mission, and now four of the second class were added.

This extension work, not only by agricultural colleges but also by universities in general, has grown by leaps and bounds throughout ~~the~~ the whole of Canada in the first half of this

century. District home economists were added to serve the special needs of rural women, while a great variety of travelling lectures, demonstrations, and regional short courses in the fine arts, recreational activities, and indeed in almost every field of knowledge, are now common.

My office was established in Shawville, the county seat of Pontiac, but I was free to extend my activities to any point on the Quebec side of the Ottawa valley which asked for, or appeared to need, help. Opportunities were many, as the work of these district agents was as diversified as the manifold interests of country life. But my range of operation was limited by having to depend on railways, boats, and rented horse and buggy for transportation. I used all three agencies on one of my pleasantest and most scenic trips, to the island of Allumette in the upper Ottawa.

My principal achievement during the one season I held the job, was the organization of three-day courses in Shawville itself and in Lachute, the chief centre of Argenteuil county. A group of professors from Macdonald College, and a few officers of the Federal Department of Agriculture, were my teaching staff. Local farmers cooperated by lending specimens of their herds and flocks, and samples of seed, for demonstration and judging. These courses were quite successful, especially the one at Lachute, where some 300 farmers attended all or part of the time. I myself gave a winter course of weekly lectures in Shawville, occasional talks in other places, arranged a chicken-raising competition for the children -- the settings of eggs for hatching from high-class purebred stock being supplied by Macdonald College -- and tried

to make myself generally helpful to the farmers of the community.

Shortly after my arrival in Shawville, I called on the president of the Pontiac Agricultural Society, a prominent livestock breeder whose farm was near Portage du Fort. First thing he did was to show me his herd of cattle in a nearby pasture, and ask me to pick out the best one. Now I had specialized in field crops, and made no pretence of being an expert judge of stock, but by a stroke of good fortune I picked the animal which had won top honours at that season's fair. From that time on I had the president's solid support!

As always in a farming community, one found many strongly individualistic types, rugged characters of sturdy independence, whom it was stimulating to meet.

Ottawa

Late in 1912 I had a letter from Dr. Charles E. Saunders, Dominion Cerealists, asking if I were interested in becoming his assistant. Now, Saunders was a name to conjure with. Dr. William Saunders, founder in 1886 and for 25 years director of the Dominion Experimental Farm System, was a great Canadian pioneer in agricultural experimentation. Also he knew how to combine art with science. The Central Experimental Farm at Ottawa had been from the outset a rare combination of beauty and utility. On June 6, 1936, in a ceremony held on its well-kept lawns, amid luxuriant flower beds, shrubs, and ornamental trees, Prime Minister W.L. Mackenzie King named a fine new administration building after the founder. In his speech of dedication, Mr. King very aptly quoted the epitaph on Sir Christopher Wren's tomb in St. Paul's Cathedral: Si monumentum requiris, circumspice (If you seek a memorial, look around you). The Prime Minister lapsed into momentary confusion when his memory suddenly failed him, and he could not get past monumentum, even on a second try. Then Sir Robert Borden, sitting on the platform just behind him, came to his rescue as prompter, and the Prime Minister fairly exploded the rest of the quotation.

With a fortunate disregard of nepotism, Dr. William Saunders had used his sons as summer help during their college days. Dr. Percy Saunders is thought to have made the cross between varieties introduced by his father, which resulted in Marquis wheat. His brother Charles, when appointed first Dominion Cerealists, actually did the painstaking work of selection and testing which led to the isolation and multiplication of this astonishing variety.

Its earliness, high yield, attractive kernels, and superb bread-making quality made it at once the standard of excellence for North American hard spring wheat. In quality it is still the standard, though in general use it has been replaced by the newer rust-resistant varieties. In its heyday it attained a yield value of about a billion dollars annually on this continent.

Already by 1912, Marquis wheat had brought renown to Charles Saunders, easily winning the championships at the biggest shows, such as the Chicago International. I eagerly accepted his invitation to work with him, and reported for duty at the beginning of March, 1913.

In the old administration building, the Cereal Division had a suite of three small rooms. The corner room was occupied by Dr. Saunders and his roll-top desk. A connecting room I shared with our divisional stenographer, while the only other assistant, a young man named R.W. Nichols, presided over the experimental baking laboratory next door. Nichols was an Englishman with a passion for all things English, and insisted on having Pears soap at the barn, where his experimental mills were located. Needless to say, he enlisted promptly at the outbreak of the war in 1914, and unfortunately did not live to return.

Not long after my arrival I attended the annual meeting of the Canadian Seed Growers' Association, held in Ottawa that year. James W. Robertson, the founder and first president, was in the chair. On the platform as secretary was L.H. Newman, destined later to become the second Dominion Cerealists. At one stage in the proceedings Dr. Robertson called on me, without

warning, for a statement as to the part the Cereal Division could play in supporting the objects of the Association. A newcomer, taken unawares, I got right then my first practice in the political art of saying nothing in as many words as possible. I doubt whether Robertson was proud that day of the performance of his former student!

In those days the west end of Ottawa was mostly fields and woods. A fellow-graduate of Macdonald College, C.F.W. Dreher, who had joined the Horticultural Division about six months before I arrived in the Cereal Division, shared lodgings with me in what was still called the village of Hintonburgh. During the winter we regularly skied to and from work, without much settlement to obstruct us till we reached the parklike grounds of the Experimental Farm. Generally we made up our own lunches, to which Nichols often contributed his toy loaves of bread. In fine summer weather the Arboretum was our favourite luncheon spot.

Dreher was the closest friend I made at college, and it was a great blow when he died soon after the war, his end hastened by war-incurred disabilities. Born in Germany, the son of a naturalized Englishman, Dreher moved to Switzerland with his family at the age of five years, and then came to Canada on his own at age seventeen. His German origin made it hard at first for him to get into the Canadian army, but he was fiercely loyal to the land of his adoption, and eventually won a commission while serving in France. He was every inch a man, of the highest principles.

Charles Saunders was a striking character. Tall and thin, his dark hair and beard contrasting with his pale complexion,

wearing a deeply serious expression and elastic-sided boots, he tempted the passer-by to turn for a second look. Possessed of lively conversational powers, Sir Charles -- as he later became -- was never loath to exercise them. Our daily contacts were always stimulating, and a visit to his house was an intellectual and musical treat. The Saunders family reunions, which were held fairly regularly, partook of the nature of small musical festivals, with string quartettes and other ensembles. Charles' main instrument was the flute, and his wife was an excellent pianist as well as a charming hostess. They gathered a music-loving company into their house periodically. It was there that I had my first introduction to the Waldstein sonata, played by Mr. R.B. Wnyte on the Knabe concert-grand piano which was the centre-piece of the Saunders drawing-room. The cascades of sound made an unforgettable impression on me.

Versatile, Charles also found special satisfaction in improving his French to the point where, with the aid of a bilingual stenographer, he could dictate letters to both segments of our clientele. His wife was a still better linguist, but he never realized this, and no one, least of all the gentle Mrs. Saunders, ever ventured to suggest it. All the same we were amused when, on retirement, they went to France to improve their French still further, and Saunders enrolled his wife in a special course in phonetics at Grenoble, which he felt it superfluous for himself to take! But of late we have become accustomed to hearing our English-speaking parliamentarians at Ottawa struggle to address their constituents in French, and in retrospect Saunders' accent seems good by comparison.

A more surprising accomplishment which he sought to improve after retirement was the art of dancing. Naturally he limited himself to the quieter forms characteristic of a statelier age, since indifferent health had been one of the causes of his early retirement. In any case, ordinary social dancing had not yet taken on the wild exuberance that ~~many~~ many young folks now display.

While he was Dominion Cerealists, Saunders regularly visited each summer the branch experimental farms from coast to coast. This made it easy for us to maintain contact with him in the years succeeding the First War, when we were in Edmonton. I remember my wife preparing supper while he played Chopin on the piano and ate a copious forecourse of ice-cream, of which he was very fond. He showed less enthusiasm for a kind of bread then featured by an Edmonton baker, with caraway seeds sprinkled through it. This was heresy to Saunders, the fastidious tester of high-class wheat varieties. When he commented adversely and I suggested he try instead the pure white bread also available on the table, he replied that he was going to eat the whole slice of caraway bread so that he would "always remember it."

But to get back to Ottawa: Saunders was trained as a chemist, with no special knowledge of agriculture. His success as a cerealists refutes the pedagogical theory that knowledge and skills are not transferable. Of course, the modern science of plant breeding was then only in an incipient stage, a book just being opened by a few adventurous spirits.

Saunders proceeded largely by rule of thumb, reinforced by intuitive judgment. For example, he corrected the growth-period

records of cereal varieties at Ottawa by assuming that a delay in seeding resulted in half as much delay in ripening. That is, if variety A were sown six days after variety B, the former would have three days added to its actual growth period for purposes of comparison with B. This was an arbitrary but common-sense procedure, based on his own observation that late-sown plots, influenced by such factors as warmer weather and quicker germination, caught up to earlier sown plots in roughly this proportion.

His primary method of selecting wheat of good gluten quality might better be called "rule of gum". A sensitive observer and a skilful and original technician, he trained himself to chew two samples of wheat at once, one on each side of his mouth, and to compare in situ the difference in the resulting gums. At a later stage he confirmed his conclusions by experimental milling and baking tests.

By such methods Saunders selected Marquis wheat, and so made himself immortal. A new generation of plant breeders came up with new methods, equal to winning such battles as that against wheat rust, something Saunders could not have done. But in his own day he was the right man on the job.

As an administrator Saunders very definitely belonged to the old school. All letters had to be signed by him personally, even though I dictated a fair number of them to the stenographer, or even typed them myself when she was on holiday. Saunders also assigned work to his assistants in considerable detail. Of course, I stayed only a year, and it was not unreasonable to keep rather tight control over a greenhorn. I found it impolitic

to offer suggestions to the little group of field men, as they complained to the foreman that I was interfering in their work, and in due course I heard about it from the Chief. The whole Division was pretty much a family compact, courteous and friendly, but not quite ready to take me into full communion without further probation.

As harvest approached, Saunders began to worry a bit about the usual problem of wet weather. The upshot was the purchase of a quantity of heavy cotton squares to be used as stook covers. Saunders remembered his brother using a solution of paraffin wax in gasoline to improve the waterproof qualities of his camping outfit, and suggested I might treat the stook covers. Nothing loath, I procured a wash tub and an ample supply of paraffin wax and gasoline, the latter then available at about 12 cents a gallon. We did the job on the concrete floor of the barn, and hung the dipped squares all around to dry. I shiver now at the fire hazard, but youth is ignorantly reckless. Anyway, the scheme was a success, and none of our precious grain was spoiled by rain.

We then decided to get a plow of our own, rather than depend on loans from the Farm superintendent. By that time Saunders had learned to appreciate my practical knowledge of farming, and left me to get a suitable plow while he was on his annual ~~trip~~ tour of the western branch farms. As our soil was sandy and our team sturdy, I decided on a two-bottom plow, and forthwith ordered a make and type I knew to be satisfactory for our purpose, which I had inspected at the dealer's and priced at \$12. That seems now a ridiculously low figure, but when we recall that New Brunswick potatoes sold that year at 30 cents a barrel, it is

perhaps not out of line. However, I was soon to learn that a Civil Servant could not just go out and buy what he wanted at the lowest figure. There was a patronage list to be consulted, and by the time we received our plow through the proper channels the price was \$14. This irked the strong Scottish strain in me, and prejudiced me almost irretrievably against the Civil Service.

The business of signing in a book each day the hours of my arrival at and departure from the office also went against the grain of one brought up to regulate his work only by the measure of his strength and endurance. It is perhaps not surprising that I was attracted by an invitation from the Government of New Brunswick to help them spend the money they expected to receive over a period of ten years under the Burrell Agricultural Instruction Act, since this seemed to offer an opportunity to regain the freedom to plan my own work and exercise my own initiative, to which I had hitherto been accustomed.

Besides Saunders, there were at the Experimental Farm other unusual characters, all of them "firsts" in their respective positions. A few of these I must mention.

Dr. Frank T. Shutt, Dominion Chemist and Assistant Director of the Experimental Farm System, a bachelor, was the very pattern of a cultivated English gentleman. He prepared the way for Saunders by investigating variations in the quantity of protein in cereals. Wheat gluten, which provides the structural framework of a loaf of bread, is the chief protein of that species. Shutt found that differences in the environment in which wheat was grown affected its protein content. Abundant moisture resulted in low protein content, while relatively dry conditions

during the growing season ensured high protein content. He also studied the soil nitrogen content of prairie soils, nitrogen being the chief element from which the plant builds protein. But his multifarious professional services, of which the foregoing are only examples, did not set bounds to his interests and influence. His main hobby was music, and he was for many years the organist of the Anglican church he attended. When I returned to Ottawa in 1932, my first renewed contact with Shutt occurred when we met at a concert by the Russian pianist, Brailowsky. Soon after that he retired and moved to Rockcliffe, a suburb, where he became our near neighbour. My wife and I had the pleasure of picking him up occasionally when driving to functions of mutual interest, and always enjoyed his quietly discerning conversation.

Dr. W.T. Macoun, Dominion Horticulturist, carried forward the tradition of beauty in the Farm grounds established by Dr. William Saunders. Macoun also contributed many valuable new fruits and flowers to our horticultural riches. Besides this, he was the life of the party in his quiet, dignified way, renowned alike for puns and poetry. One of his puns I must record. He was accompanying a party of visitors around the Farm buildings one day. In due course they arrived at the pig barn, where enormous fat patriarchs and matriarchs were enjoying their customary siesta. The attendant began stirring them up with kicks on the hind quarters, when Macoun expostulated, "Don't do that, my good man, — 'The rude forefathers of the ham let sleep!'"

Dr. M.O. Malte, Dominion Agrostologist — literally translated, an expert on grasses, but actually he was in charge of all forage

plant investigations -- was a Swedish educated immigrant and probably the best authority on plant identification and classification we had in Canada at that time. His skill in this field was recognized and better utilized when, some ten years later, he was appointed Curator of the National Herbarium. Meanwhile we greatly enjoyed our contacts with this picturesque figure. Jolly, red-haired, red-bearded, rubicund, rotund, he could have been a model for Franz Hals. A bachelor, he lived in a hotel in Hull, across the Ottawa River, where his exclusive beverage, beer, was more readily obtainable.

Woodstock

The Hon. Martin Burrell, first Minister of Agriculture in the Conservative administration which displaced the longstanding Laurier regime in 1911, introduced an Act to provide for the expenditure of ten million dollars over a period of ten years, to aid the provinces with agricultural instruction. The provinces were required to match the federal grants. Funds under this Act first became available in the fiscal year 1913-14. The grant that year to the province of New Brunswick

was some \$40,000, to be increased annually to a maximum of some \$60,000. These are not large sums by present-day standards, but when doubled by the province's own contribution, meant a very large increase in the amount spent there on agricultural education. The provincial administration began to make grandiose plans.

A wealthy resident of Woodstock, L.P. Fisher, had through his will provided the town with a hospital, a library, and a vocational school building. The School Board had just begun to use the first floor of the last-named for instruction in household science and manual training, but offered the basement and second floor to the Government for use as an agricultural school. Here accordingly I made my headquarters early in February, 1914, and on March 9th opened the first course. I had visited the province late in 1913, and made arrangements for the construction of classroom furniture, including that for a stock-judging arena in the basement. The course consisted of three units: a week devoted to horticulture and beekeeping, a second to field crops and soil management, and a third week to livestock, dairying, and poultry. For staff, I drew upon provincial officials and several outsiders, especially from Macdonald College. Thanks to the good work of all the staff, and a large group of interested students, many of whom stayed all three weeks, the course was a success.

Before leaving Ottawa I had been warned by more experienced friends to expect to find my activities in New Brunswick hampered by political considerations of all sorts. In fact, Geo. H. Clark, Seed Commissioner, said he would be surprised if I stuck it longer than three years. His prophecy was not put to the test, as the war intervened. But the ramifications of politics in the town of Woodstock, for example, were almost beyond belief. Grocers, fuel dealers, liverymen, and other businesses mostly existed in pairs, one Conservative and one Liberal. As an employee of a Conservative government, I was expected to patronize its supporters, and when I made an error some well-meaning friend found occasion to bring it to my attention.

The first explosion came when the janitor of the school building, feeling himself secure as a political appointee, carried out only such of my instructions as suited his pleasure. When he declined point-blank to clean the blackboards at the end of the school day, I fired him on the spot. What a furore! The local organizer of the Party conducted an investigation. I stuck to my guns, and we got a more amenable man on the job.

A traction ditcher had been purchased by the Department of Agriculture to demonstrate the value of underdrainage. I inherited this as one of the activities under "soils and crops",

my second personal responsibility throughout the province, after organizing formal courses of instruction. I soon found the operator of this machine was incompetent and, since it was essential to the success of the project that ditches be run to proper depths and gradients, I replaced him also. Again an enquiry, this time by the Deputy Minister in person, who, it turned out, had been collecting part of the wages of the operator in payment of a personal debt. Again I was supported, the evidence for my contention being clear, but already I began to feel less enthusiasm for my job.

The most serious effect of these political pressures was on the over-all policy for agricultural instruction. I found the Government had committed itself to three agricultural schools: one at Woodstock, where the Premier lived; a second at Sussex, the home and constituency of the Minister of Agriculture; and a third at Newcastle, the north shore home and constituency of another member of the Cabinet. I tried to persuade the authorities of the impracticability of running so many schools properly on our limited budget. Other provincial interests were competing for a share of the Burrell grants, particularly for the supplementary training of elementary and secondary school teachers to teach agriculture and operate school gardens, a field in which public interest was then at a maximum. A native son, R.P. Steeves, was employed by the Department of Agriculture to have charge of this training. He was an enthusiastic and eloquent ^{proponent.} ~~protagonist.~~ I argued in favour of giving up, if necessary, the Woodstock school (the building owned by the town of Woodstock) in order to have funds enough to establish and maintain one worthwhile,

centrally located school at Fredericton, where we might secure the cooperation of the University of New Brunswick, the Dominion Experimental Farm, and the Provincial Normal School. Close association with the last-named seemed especially important for Mr. Steeves' part of the work. But the Sussex commitment was too strong, and my only satisfaction was in planning and supervising the construction and equipment of the building, an activity that took much of my time that first year. I managed to stave off the Newcastle project by persuading the Minister of Agriculture that he and I together should visit Wisconsin and Alberta, to see the three agricultural schools each of these places had just established. I confidently expected he would then realize that New Brunswick could not duplicate the programs of these much larger and wealthier areas. But the war intervened, and our trip never came off.

Meanwhile, in the early summer of 1914, I was in charge of a "Better Farming Special", a train equipped with demonstration exhibits, including livestock, which stopped at a large number of places on all the lines of the Intercolonial Railway in New Brunswick. Nowadays it would be called a whistle-stop campaign. Our itinerary was well publicized, and great crowds turned out to meet us. Our program included explanations of the exhibits, lectures and demonstrations in the open air or in the waiting rooms of stations, and evening lectures illustrated by lantern slides in public halls of the places visited. An incidental benefit to me and other newcomers to the province was a rapid enlargement of our acquaintance with its agricultural resources and scenic beauties. The latter we enjoyed particularly from

a vantage point on the "cowcatcher" of the locomotive pulling our train! Once a bull moose lumbered off the right-of-way just in time.

Then came an important break of six weeks, for marriage and honeymoon. We sailed from Montreal July 31, aboard the "Athenia", which was soon to fall victim to a German submarine. But this voyage was uneventful except for the radioed news of the outbreak of war on August 4. This confined our travel to Scotland and England, where we visited relatives of both families. Highlights included a trip down a coal mine at Accrington, under the guidance of the manager, George Elce, a friend of my father; a visit to beautiful Malvern, where my wife had attended school for a short time while her family was en route home from Africa; and the first of several visits to Rothamsted, the famous agricultural experiment station established by Lawes and Gilbert. There I met Davis and Daish, who were investigating the carbohydrates of mangold leaves, and obtained some useful leads for my own researches years later.

We returned on the overcrowded "Virginian", also fated to be sunk during the war. In Woodstock one of the first families to entertain us was that of kindly Premier J.K. Flemming. Among the young children around the dining table that Sunday was Hugh John Flemming, later to follow in his father's footsteps as Premier of New Brunswick and then to move to Ottawa as the first Minister of Forestry in the Diefenbaker cabinet.

But there was little time for social relaxation. The war lent greater urgency to steps to increase production. We pressed forward our program of land drainage, making free surveys, and

supplying on loan a hand or small-power machine for making cement tiles, because clay tiles were in short supply and very expensive. This part of the program was doomed to failure, because cement tiles broke down in a few years through chemical interaction with the soil. We had not then available the information later gained by Professor T. Thorvaldson, of the University of Saskatchewan, in his long-continued researches on the deterioration of concrete in prairie soils.

A more successful project was the introduction of the first portable limestone pulverizer brought into Canada. With the kind help of Dr. Frank T. Shutt, Dominion Chemist, ~~who~~ had our samples analysed, we determined that limestone deposits of a satisfactory degree of purity were well distributed throughout New Brunswick. We persuaded groups of farmers to cooperate in ~~the~~ collecting supplies of limestone in several communities, while we provided the pulverizing service at cost. The effect of adding the powder to those acid soils was in some cases almost magical. Thus was born an industry which flourishes to this day.

In the winter of 1914-15 we conducted another series of courses, one week at Newcastle, six weeks at Woodstock, and four weeks at Sussex, again with reasonable success. This time I had one especially enthusiastic student, my wife, who had no previous knowledge of agriculture, and took these courses in a conscientious effort to learn and understand more about my work. Then, in company with S.L. Peters, of Queenstown, N.B., a charming old gentleman and a most effective speaker, I set out on a speaking tour of the province, in the "Patriotism and

Production" campaign sponsored by the Federal Department of Agriculture. The Commissioner of Agriculture, Dr. C.C. James, in an introductory meeting added a supplementary slogan in Miltonic phrase: "They also serve who only stay and sow." One of my pleasantest recollections of this tour is of Mr. Peters' leading the singing of "We'll never let the old flag fall," in the course of every meeting. It was his own idea, and to see this man well past three score years and ten waving his arms ~~waving~~ to conduct with such vigour and spirit was exhilarating.

But talking about patriotism is not a very satisfactory exercise! Already some of my friends had enlisted for active service, among them C.F.W. Dreher and W.D. Ford. The latter was another graduate of Macdonald College, whom I had brought to New Brunswick as animal husbandman. Still another, B.T. Reed, who had come to help me with soils and crops, was only held back by an eye defect that debarred him. A rare spirit, he later underwent an operation at his own expense to overcome this hurdle. I happened then to be acting officer-in-command of the 34th Depot Battery at Kingston (the commander being ill) and I sent Reed a travel warrant and enlisted him on his arrival. Both Ford and Reed were killed in action quite soon after reaching France, and Dreher followed them not long after ^{the war,} ~~wards.~~ "Whom the gods love, die young."

Come the spring of 1915, I applied for admission to an artillery officers' training course at Kingston.

But Woodstock had made its own special contribution to our lives.. The town had a setting of unforgettable beauty -- perched on the hilly right bank of the St. John River, facing its confluence

with the Meduxnekeag, the town itself intersected by another tributary, a creek whose wider reaches provided skating in winter. The "intervalles", as the alluvial bottom lands were called, bore abundant crops, with potatoes and dairy products the specialties, while the adjoining slopes blossomed with apple orchards. There, too, as everywhere we have been, we found friendly and interesting people. A distinguished couple were Chester O. and Erna Handel MacDonald. He was a local bank manager, and an excellent pianist. He regularly accompanied his wife, a most musicianly soprano, who traced her descent to the family of the great George Frederick Handel. That first winter my wife joined them as piano soloist in a public recital in aid of war charities. Later the MacDonalds moved to Boston, where Mrs. MacDonald established her own teaching studio. We have appreciated their lifelong friendship. Others there were with whom we maintained pleasant contact long after our sojourn in Woodstock.

Chapter VI

WAR

In that pre-atomic era, a romantic aura still lingered about war in the minds of the young. Like other normal boys, I had played with toy soldiers, revelled in picture books of brightly uniformed regiments, admired parades stepping smartly to martial music, thrilled to the rolling ~~barrage~~ of rifle fire known as the feu de joie, lost myself in G.A. Henty's war stories. Hero worship and innate love of adventure made us wish we were old enough to join in the Yukon gold rush or the Spanish-American and Boer wars, all coming in quick succession. Baden-Powell was a No. 1 hero, and the relief of Mafeking must have been almost as real to us as it was to him. We sang "The Soldiers of the Queen" at every excuse.

By the time World War One came, my generation had mostly outgrown its boyish ^{enthusiasms} ~~sublimations~~, and I think it fair to say that our chief motive for enlisting was patriotism. Perhaps we had not yet grasped the full meaning of that word in the way Edith Cavell later experienced it, but we felt instinctively our duty to Canada and the Motherland.

The First Great war has been more than amply written about. Here I shall describe only a few of the more interesting experiences I shared.

After months of waiting, I was finally notified to report to the Royal Canadian Horse Artillery barracks in Kingston, for a course of training beginning August 2, 1915. Over 80 would-be field artillery officers turned up. Captain Ringwood, the chief instructor -- a strong character with a physique to match -- told

us the class was too large and he intended to reduce it. His method was to get us on parade at 6 a.m. daily, with long runs and still longer numnah rides (no saddles) before breakfast. That was just the opener for a long day of strenuous exercises, lightened only by a few interspersed lectures. At the end of the first week only 60 students survived. The pace then slackened a little, also we grew tougher, but a straight ³⁶~~24~~ hours of field manoeuvres towards the end of the 6-week course was still a real test. On the last Sunday we had a church parade, and stepped off proudly to the strains of "Colonel Bogey" played by the crack band of the R.C.H.A.

Then I was given a commission in the 34th Battery, just being organized by Major Robert F. Massie, a 6-foot 4-inch insurance broker from Toronto. He, too, was a strong character, who attracted a splendid type of young men in his recruiting drives. We sent three drafts overseas before we went over as a unit of the 9th Brigade early in February, 1916. My wife had been able to live in Kingston during the period of my training, but now came young love's parting, and it was hard. At that time the 34th Battery was transformed into the brigade ammunition column. This was a blow to our pride, but it was only temporary, as brigade columns were soon replaced by divisional columns, and Major Massie took command of the 33rd Battery, taking most of his officers and men with him. By that time I had become adjutant of the 9th Brigade, and was in a position to influence the distribution. I well remember the anguished appeals of individuals, not to be separated from their buddies by relegation to the "Dominion Automobile Club" as the D.A.C. (divisional

ammunition column) was irreverently called. Our first loyalty remained with the 34th, and it was under that name that invitations were sent for annual reunions after the war. Massie was always "The Major", even after he was promoted to the rank of colonel. He was a straight shooter, but not so strait-laced as to mind signing monthly certificates that there were no cameras in the unit, while all the time he was keeping a pictorial record of the unit's history. Be it added that he was careful to mail the films home promptly, so that nothing could fall into the hands of the enemy if he were captured. After the war his Christmas cards to his old boys were always illustrated by a striking picture recalling the days of their comradeship in France and Flanders.

Field artillery was then horse-drawn, and to me it was no small compensation for other drawbacks to have good horses to ride. This was especially so during our period of training at Kingston and at Bramshott and Witley in England. During the long period of relatively static warfare on the western front we saw our horses only when we changed our positions. At Kingston one of my fellow subalterns was given a highly bred horse by a wealthy uncle. This splendid animal was so spirited that my colleague thought it expedient to turn him over to me to break in, and I continued to share him for the months we stayed there. A good riding horse is such a good companion! In England our "officers' chargers" enabled us at weekends to explore the countryside from Liphook to Guildford in beautiful Surrey. Haslemere was perhaps our favourite resort for Sunday tea. Our last trek for field manoeuvres and firing practice as the 3rd

Divisional Artillery took us to Lark Hill, near Salisbury, where we gazed at the massive rocks of Stonehenge and wondered how primitive man ever got them there. Finally we were reviewed by His Majesty King George V, and knew our keen desire for really active service would soon be satisfied.

Our first camp was at Steenvoerde, in the Ypres sector. That was in mid-July, 1916. I had the doubtful distinction of becoming the first casualty in the division. A small party of us had gone to see the positions we were about to take over. We lodged overnight in the famous ramparts of Ypres, and completed our inspection next day. That evening I was standing behind the ramparts with a group of the English officers we were about to relieve, when a 5.9 shell dropped near us. Fragments hit two of us. A piece of the copper driving band passed through my thigh, fortunately missing the bone. It was a real disappointment to be sent back to England just then, but I recovered promptly and rejoined my unit, still at Ypres, in a few weeks.

As a member of the brigade headquarters I had little opportunity for direct shooting, but did so occasionally on invitation of Major Massie. He had established an "O Pip" (Observation and fire control post) on top of the Ypres Cathedral tower, the only part of the building still standing. It commanded a good view of the enemy front. The Germans knew about this perfectly well, and shelled the slender tower intermittently, but never scored a direct hit on such a small target. Once I had the thrill of directing the fire of the whole division from an observation balloon, in which I had ascended some 2500 feet on invitation of its commander. But this was a risky business

for one not trained in parachute jumping, as these hydrogen-filled balloons made an easy target for German planes with incendiary bullets, and often came down in flames.

Later that summer we moved to the Somme, where we relieved an Anzac division. As before, an advance party went to reconnoitre. We travelled in a London bus, with open top deck and hard rubber tires. As we approached Albert we saw the gilded statue of the Virgin hanging precariously from the steeple of the ruined church. Already a romantic superstition had sprung up that the Germans could not take the town as long as the Virgin held on. At the outskirts of the town the road led through a subway too low for our bus. we walked the remaining distance in the twilight, found with the assistance of the town major a roofless public building that might serve for overnight shelter, and then looked for food. Eventually our flashlights revealed some cans of sardines in a little shop window. we knocked up the proprietor, and found he also had bread and wine, and a table at which we could sit down. Those were our rations for supper and breakfast. In between we bivouacked^a fully clothed on the bare floor of the aforesaid building. One cold water tap in the courtyard still worked, and served for morning ablutions and shave.

In due course we established our 9th Brigade positions in front of Martinpuich, which still showed on the map as a village, though nothing remained of it but a few scarred trees among piles of rubble. A deep German dugout, with entrance facing the wrong way, became our brigade headquarters. It had been used as a store for explosives by the engineers. This store we carefully removed and piled it by by a trench railway some hundred feet

from the entrance, expecting the engineers would take it away. They never did, but by a miracle it was never hit during the rather terrific shelling of the next few weeks. After one strafe we had to rebury a dozen grey-clad bodies in our immediate vicinity.

Our own ammunition, which had been severely restricted and economically used during previous months, now became abundant, thanks to the diligent munitions workers of England. We not only used it liberally, but kept 400 rounds per gun in reserve for an expected offensive that never came off. One afternoon came orders to pull out the following day. I telephoned the brigade major at divisional headquarters, and asked in the cryptic language we had learned to use in an effort to deceive a possibly listening enemy, "What shall we do with the iron rations?" He replied, "Export them." What a Guy Fawkes celebration we had that night! The brigade commander sat in front of a map while I sat at a telephone relaying such orders as, "Tell the 32nd Battery to fire 20 salvos at the main cross roads of Pys, and report when complete." We knew perfectly well that we should get it all back the next night, and arranged for our ~~our~~ horses to arrive promptly at nightfall. The first enemy salvos were just beginning as we made a hasty exit.

About this time there took place our own private "Jamieson Raid." One of the splendidly effective fellows recruited by Major Massie bore the name of Jamieson. He became our brigade sergeant-major and soon afterwards was given a commission. Arriving at a place where there was no accommodation for the men, he called out a section and marched them smartly up to a large engineering dump closely guarded against unauthorized

scroungers. In full view of the sentries he cried, "Halt! Fall out and pick up the stuff the colonel ordered, and be quick about it." Then he supervised the selection of corrugated iron sections and other materials necessary to build a hut. And he got away with it, as he usually did.

Living for several weeks in crowded quarters in a deep dugout, much confined there because the entrance was in full view of the enemy and shelling was heavy, was a real test of adaptability and compatibility. The colonel (not Massie) and I did not hit it off too well. He was inclined to be morose, and solaced himself by drinking freely, though never to the point of inebriation. Over-serious myself, I probably did little to lighten the atmosphere. I never lost my respect for the colonel's qualities as an artillery officer of long experience and real skill. Also I had sense enough to recognize even then that my own inexperience and unmilitary mistakes must be trying to him. But he began to resent my not drinking with him, and as the winter progressed and we moved to other places he withdrew from the rest of us more and more. Finally he arranged for all official mail to be delivered to his own dugout, and stopped passing it on to me. This created an impossible situation, as most telephone calls, whether from the battery commanders or from the brigade major at divisional headquarters, were directed to me as adjutant, and I could not answer intelligently in the absence of knowledge of current orders. I had talks about the situation with both the colonel and the brigade major, and suggested I should return to one of the batteries. But the colonel seemed reluctant to act, and when a call came for officer-volunteers to staff the first

Canadian anti-aircraft battery, I took the opportunity to make a change. It is perhaps not unfair to add that my case was not unique: the colonel went through a number of adjutants and orderly officers in his quest for individuals both congenial and efficient.

Anti-aircraft guns were motorized, though, by an illogical convention, as field artillery officers we were still expected to wear spurs on dress parades. On the whole it was a pleasanter life, as we seldom had to live in dugouts. There was one notable exception, just after the capture of Vimy ridge, when we occupied exposed positions, first on top of the ridge in the ruins of Thélus, then at Petit Vimy in the plain in front of the ridge. Though living in dugouts, our casualties there were quite heavy, especially from gas shelling. The anti-aircraft service was popularly supposed to be relatively safe, but I had more near squeaks after than before joining it. One amusing instance occurred when I was riding a motor-cycle from my section position in front of Vimy to our battery headquarters at Carency. As I approached a crossroads which, in the methodical German manner, was being shelled at two-minute intervals, I paused to wait for a shell, then pushed on, expecting to be well clear before the next round. But just then the motor balked and sputtered and I was exactly on target when I actually saw the next 8-inch howitzer shell landing on the bank a few yards short. I ducked over the handle bars, and fortunately the bank was deep enough to let the shower of splinters and rubble pass harmlessly over me. The concussion apparently dislodged the particle of dirt clogging my gas line, and the bike sprang ahead over the bumpy

road like Tam-O-Shanter's gray mare pursued by the witches, myself holding on tightly.

As our armies prepared for the big push that was to break through to final victory, I was given the task of protecting the important First Army railhead at St. Pol-sur-Ternoise, with three gunsections (two guns each) and three searchlights, also a dozen machine guns to deal with low-flying bombers. We distributed these around the railhead, and the English officer in charge of the searchlights cooperated in working out a triangulation system by which, as we listened to the sound of approaching bombers, we could track their course and estimate their height before they came within range. They were slow-flying in those days. This enabled us to put up a barrage of shell bursts in front of them, which usually had the effect of turning them aside to drop their bombs harmlessly in surrounding fields. The system worked well enough to bring representatives from other armies to see how it was done, and the Americans attached a couple of officers to us to gain experience.

Twenty-four of the big Gotha bombers were about as many as we ever had to deal with in one raid. Each plane usually dropped a "stick" of five or six bombs. We had established our "O Pip" on a hill overlooking the railhead, and erected a Nissen hut there to sleep in. When a near miss blasted this, and bomb splinters sent my searchlight officer and a gunner to Blighty, we decided to put our control post in a pit shoulder high, making it easy to duck for shelter. And well we were rewarded when a stick of bombs bracketed us. In the morning we saw crater No. 3 some 25 feet short of us and No. 4 just a couple

of feet clear of the end of our pit. We saw also that the plane had providentially changed course between bombs No. 3 and No. 4, else the latter would have fallen squarely on us. By this time I was gaining a reputation for being lucky, and one of our battery officers affected the habit of keeping close to me for greater safety! Here I must admit that in the ten weeks we were at St. Pol we actually brought down only three of the night-bombing planes, though we damaged a number of others. Both anti-aircraft guns and gunnery were still in a rudimentary stage of development. Our fire was effective chiefly in scaring them off.

At St. Pol we thought we had only bombs and machine-gun fire to fear, and were not a little surprised when one night the Germans opened up with a 16.5-inch high-velocity gun, firing from Meurchin, 28 miles away. Our billets were almost exactly on the line of fire, and we had our first experience of what is now called sonic boom, the intense shock wave reaching the earth as these large projectiles passed overhead at speeds greater than that of sound. At first we thought they must be air bursts, but when no shell fragments came down we began to understand their nature, and dubbed the gun "Noisy Norman". He became a ~~frequent~~ ^{familiar} visitor, dropping in at intervals over some weeks. Only the first shell actually reached St. Pol. Succeeding ones fell progressively shorter, and eventually in the vicinity of our billets. We marvelled at the force of the explosions, perhaps trifling by modern atomic standards, but the greatest we had seen till then. Most shells fell in fields, doing no damage apart from causing huge craters. One detonated on a hedge just short of our billets. Fragments passed through all six layers

of steel presented by three Nissen huts standing side by side. Other pieces passed through a wall three bricks thick. One cut off an elm tree ten inches in diameter. Happily our casualties were light, though neighbouring ~~ixx~~ farm stock suffered more.

Field service cookery usually left something to be desired, but in our St. Pol headquarters one of our batmen was quite enterprising, and some of his culinary experiments were reasonably successful. One was not. We were entertaining a visiting officer to tea, and in honour of the occasion our batman-cook served some very attractive looking jam tarts. Personally I thought their taste belied their looks, and ate only one. The visitor expressed himself delighted, and ate three. Afterwards I asked my own batman privately to find out if he could what went into the pastry. In due course he confessed shamefacedly that, because they were short of flour, he himself had visited a neighbouring farmhouse in an effort to buy a little. His meagre knowledge of French had led to misunderstanding, and what he brought home for flour turned out to be the "kalsomine" used for whitening walls. This the cook had added in about equal proportion to his remaining small stock of flour.

When the issue of flour as part of army rations was discontinued altogether, I felt it prudent to accompany the scrounging party myself! We found a small and very primitive water-driven mill not far away, in which the grist flowed from the stones into a revolving cylinder of graduated wire screen, sloping from the finest mesh at the top to the coarsest at the bottom. The product fell into a long trough, with no partitions. The miller decided arbitrarily where flour ended and shorts began, and where

these gave way to bran. When flour was scarce he was more liberal in his judgment of what deserved to be so classified.

Batmen deserve to be included among the unsung heroes of the war. Visiting our battery headquarters one day, after an absence of some weeks in an advanced post, I met the captain's batman and called out, "Hello, Milroy! How goes it?" "Well, sir," he answered, "You know how it is, battin' and cookin' for a bunch of officers." He probably was not conscious of the note of frustration in his voice — frustration that must have been shared by many in the multitude required to serve an army, often in menial jobs, without the excitement of sharing in the actual fighting. I thought of the men at the waggon-lines, feeding and grooming horses, and cleaning out stables, jobs that must have been alien to the experience of most of them. I thought still more of the men slogging through the mud nightly with a string of pack mules, bringing up ammunition they never had a chance to fire off. Then there were the men and women in Britain making munitions, driving trucks, doing countless other unaccustomed jobs, taking the enemy bombs with no opportunity to strike back. And all those living in hourly dread of ill news. These also served.

When the First Army advanced, we moved up to Arras to perform the same railhead protective service there. But German resistance was crumbling, and their bombing rapidly diminishing, thus making our duties light.

At both St. Pol and Arras I benefited from the remarkable adjustment of the human ear to sound. I had previously found that one quickly got used to particular noises. In one position we slept in front of a 60-pounder battery, about 75 yards distant.

One would have supposed their sharp cracks at all hours of the night would have made sleep impossible, yet after the first couple of nights I never heard them. At St. Pol all the bombing was done at night, and it was the duty of the sentry to wake us the moment he heard the sound of a German plane. But never once did I have to be called: I was awake the instant a bomber came within sound range. Yet dozens of our own planes passed over without disturbing me in the slightest degree. Even my sleeping ear easily detected and distinguished the characteristic drone of the German motors. Such methods of detection would of course be quite useless with today's high-speed aircraft.

During the long period of relatively static trench warfare we had a good deal of free time on our hands. The readable but ephemeral books supplied by the Y.M.C.A. soon palled, and I made a deposit with a London publisher from whom I ordered periodically quite a number of the classics, especially the great novels I had not yet read. These I passed along to members of my own and other units. I remember the special interest of reading Hugo's "Les Miserables" while we were at Carency, the last town on Jean Val-Jean's exciting drive from Montreuil-sur-Mer (First Army headquarters) to Arras, whither he hastened to save from condemnation a poor wretch mistakenly supposed to be Jean Val-Jean.

The above reference to the Y.M.C.A. must not be taken to imply any lack of appreciation of the wonderful service performed by this and other voluntary organizations in alleviating the boredom and real suffering of war. Here, too, I should mention parcels from home, sent faithfully by our relatives and by organized groups, such as, in my case, the Macdonald College group. These

contained little comforts of all sorts, articles of clothing and dainty foods to eke out rather drab rations. Indeed there was intrinsic interest and excitement just in getting such a parcel, quite apart from its contents. Occasional faux pas on the part of the senders caused much merriment, as when one officer received a can of bully beef in his parcel.

On my leave in Paris I bought a small gramophone and a few good records. Later I obtained another machine and many more records from the Y.M.C.A., free. These provided a relief from boredom both in our officers' mess and in the men's huts. One thing of interest I noticed especially: when I lent my collection of records to the men they invariably selected and played the good ones. Nowadays when I turn on the radio and find my ears assailed by trash, I may be forgiven, in view of my own experience, for doubting the claim of the stations that it is "what the public wants."

At St. Pol, my duties occupied me chiefly at night, when the bombers came over. During the day I was relatively free, and made a number of interesting excursions through the countryside, often on foot, sometimes by motor car. J.C. McRuer, who later achieved great distinction as Chief Justice of the High Court of Ontario, was in charge of one of the anti-aircraft gun sections assigned to my command, and was a congenial companion on some of these excursions. Perhaps we shared some of the sober outlook on life that turned him into a judge and me into a professor. Our longest excursion was a drive through Montreuil to the sand dunes of the coast, where we enjoyed a swim in salt water.

As the war dragged on, many of us developed a vague uneasiness

that we were forgetting all about the professions we had trained for. It looked as though the war might last indefinitely, that even if we should survive it we should be fit for nothing else. It became a popular pastime to estimate how long the war could last before it ground to a halt under a constantly increasing load of paper work such that no one would have any time left to fight. "Punch", with unerring instinct, published a story of an officer treated for shell shock~~y~~ because of notes he had made in the margins of "Idylls of the King." For example, opposite the line, "Nine years she wrought it," his note was, "Sketch an imaginary correspondence between Merlin and Ordnance Officer, Camelot, with reference to the delay in the delivery of Excalibur." Major H.G.L. Strange, an English engineer I knew later in Alberta, told me of "losing" a file relating to a missing cart in a convenient shell-hole well filled with water, thus not only reducing his office baggage by several pounds but lightening his load of correspondence.

The turning point in my own interest came when I wrote the United States Department of Agriculture in Washington, asking to be put on the mailing list for the "Experiment Station Record." This was a monthly summary of publications of all the agricultural experiment stations in the United States. It not only brought me up-to-date in the field of agricultural research but enabled me to write to individual~~s~~ stations for publications I found of special interest. All these came free, with characteristic American generosity. Among the bulletins I received were two on the identification of grasses, one by vegetative characters and the other by their flowers. These enabled me to make a study

of French grasses, a study which not only captured my interest but had important consequences later. Other references decided me to make a special study of the nature of winter hardiness in plants, as the subject of a doctoral dissertation to which I looked forward hopefully. I even selected the University of Minnesota as a good place to work, on the basis of the program under way there.

Meanwhile, as the war became better organized we were given more regular periods of leave. One leave I spent in Paris, but the others in England, where I divided my time between London, with Sir Thomas Beecham's operas, and my uncle's place in Southport. In London, the Royal Automobile Club gave honorary memberships to overseas officers, and it was a very pleasant place to stay until its popularity led to overcrowding. Late in October, 1918, I had leave warrants in my pocket for the French Riviera and Italy, but was struck down by the virulent 'flu epidemic instead, and was evacuated to England. My initial disappointment soon gave place to appreciation of various compensations.

By November 11 I had recovered sufficiently to have all-day leave from the Third London General Hospital in Wandsworth, and was in Piccadilly Circus at 11 a.m., in company with ^{E. A.} ~~Dreher and~~ Lods (fellow graduate^a of Macdonald College), when a plane flew low overhead, dropping small air bursts to announce the Armistice. The mad scenes of excitement and joy which followed are a familiar story: to share in it at first hand was something to remember. One indelible picture is of an elderly gentleman in morning coat, striped trousers, and top hat, marching alone down the Strand, with solemn dignity holding up in his right

hand a short staff bearing the Union Jack.

Almost immediately I received from home two offers of employment, one from the University of Alberta to become assistant professor of field husbandry at \$2000 a year, the other from the University of British Columbia to be assistant professor of agronomy at \$2500 a year. (Field husbandry and agronomy are merely two different names for the same things.) As I had never been west of Niagara Falls, I went to Canada House to read up about Alberta and British Columbia, and came to the conclusion that Alberta had much greater agricultural potential, as well as comparing favourably with British Columbia in many other respects, including mountain scenery. I therefore declined the British Columbia post, in spite of its salary advantage, but could not then make up my mind to go to Alberta, as I had set my heart on proceeding immediately to post-graduate studies. Meanwhile, having become an unattached officer with no apparent prospect of getting home at once, I was able to arrange through Dr. H.M. Tory, president of the University of Alberta, who was in London as president of the "Khaki University," to go to Cambridge University for refresher courses. Dr. Tory was to be a strong and lasting influence in my life.

Cambridge was the big compensation for missing my southern leave and the interest of moving up to the Rhine with my unit. At Cambridge I sat at the feet of men who had been great names to me during my undergraduate course: R.C. Punnet in genetics, T.B. Wood in agricultural chemistry, R.H. Biffen in plant breeding, G. Udney Yule in statistical methods, F.F. Blackman in plant physiology. The lectures of these men, with one exception,

typified the dignified style and literary finesse of British professors in the old tradition. Wood maintained his aplomb even when a demonstration experiment, manipulated by an assistant, blew up in ~~xxxxxx~~ the professor's face, fortunately without serious harm. In Blackman's case, an ear sensitive to words might even be distracted momentarily from his theme by dwelling on one of his striking phrases; for example, when he referred to the common equation for the initial reaction in carbon assimilation (carbon dioxide + water = formaldehyde + oxygen) as a "burlesque summary" of what actually happened in the green leaf. Punnet was a bit more casual, but the real exception was Biffen (later Sir Rowland Biffen). He sauntered into the classroom in an unpressed suit, hung the dilapidated gown he should have been wearing, and his battered hat, on a convenient peg, took his pipe out of his mouth — but held it in his hand to use as a pointer unless he had occasion to write on the board, when he laid his pipe on the desk — sat on a corner of the desk and began to talk as informally as over a cup of tea. But his talk was effective, always to the point, and no wasted words. When his fame as a plant breeder grew, he was plagued by too many visitors. Once, as he was leaving the street door of his laboratory, he met a would-be caller, who enquired whether Professor Biffen were within. "He was there a minute ago," replied Biffen, and mounting his bicycle rode briskly away. Yule supplemented Biffen's course by introducing us to statistical methods of assessing the value of new hybrid plants. This was an important new tool in biological research, one which R.A. Fisher ^{subsequently} developed much further, first at Rothamsted and later

at Cambridge.

As frost resistance in plants was now my special research interest, Dr. Blackman introduced me to Professor F. Gowland Hopkins and Miss Muriel Wheldale, of the department of biochemistry. Miss Wheldale had in manuscript form a book soon to be published as "Practical Plant Biochemistry". It was arranged that, when not busy with lectures, I should go through this manuscript, trying the numerous experiments outlined. This was a good introduction to the techniques I should need when I launched my own researches.

The biochemistry staff made me welcome. Every afternoon I joined the others at tea around a long table, with Hopkins (later Sir Gowland Hopkins) at one end slicing bread, and his secretary at the other end pouring tea. No apology was made for talking shop: Hopkins enquired of us about our progress and problems, and gave wise counsel as needed. I had not realized before how useful a function tea could be.

It was an unusually cold winter. Ice skating on ponds continued for several weeks. There was also a severe coal shortage, and both my "digs" and the laboratory building were always cold. Instead of a white cotton laboratory coat, I wore my "British warm" while at work. Towards spring I went down with a heavy cold, and had to go to the local military hospital, whence I was sent to a convalescent home at Matlock Bath. Thus ended my blissfully happy period in Cambridge, the longest of several visits I was to enjoy there.

Before I left Cambridge, Dr. Tory had written that if I would go to the University of Alberta for a year, to help them with the

rush of returned soldiers/ students, he would then give me leave to study at the University of Minnesota. As I was eager to work for a while in the prairies, to learn something of what seemed the most important agricultural region of Canada, and was not averse to having assurance of a job after my graduate studies, I accepted his offer.

Now my object became to get home as quickly as possible. This was not easy, since the authorities were mainly concerned to send home complete units, and paid little attention to the desires of unattached officers, who caused no trouble such as was threatened by idle men impatient at delays they did not fully understand. Thus from Matlock Bath I went to so-called demobilization camps at Ripon and Rhyl. Even through my own milder impatience I was not insensitive to the charms of an English spring, especially in districts of such natural beauty. At Matlock Bath I took long walks over the hilly roads. At Ripon I golfed in the shadow of Fountains Abbey. From Rhyl I took char-à-banc tours to Snowdon, Bettws-y-coed, and other places whose beauties defy description even as their Welsh names defy pronunciation. Lt. Col. Allan C. Rankin was the medical officer commanding the convalescent home which occupied the sumptuous Royal Hotel at Matlock Bath. I did not know then that he was professor of bacteriology in the University of Alberta, but I appreciated his quiet, understanding courtesy. He readily accepted my suggestion that all I needed was rest and outdoor relaxation, and could forgo the elaborate thermal bath treatment afforded by the institution.

In Matlock I had visits from my uncle and cousin, from

Southport and Stalybridge respectively; also from my father, who had come over both to visit his brother and to satisfy his mind that his own two sons were really all right after their war experiences, also to do anything he could to hasten their return home. On the last score he was no more successful than I had been, but I did enjoy his visit, and shortly thereafter joined him in visits to our relatives and to some of his boyhood haunts. We attended a Sunday morning service in Dukinfield Old Chapel, sitting in about the same pew he had occupied in his early days. The service and music conformed to the high standard of Unitarian churches. The minister preached from the text, "My brethren, count it all joy ..." - very apt just then, when England was struggling to her feet after the crushing burdens of total war. After the service we had the great pleasure of meeting Mr. Kerfoot, then very elderly, the Sunday School teacher who had inspired my father in the quest for higher education.

In Ripon we lived in huts, but comfortably enough, and there I found my old unit, so could chum around with my wartime buddies. An interruption came soon, when I was sent to Ryel, along with a Major Agnew, to sit on a court-martial trying soldiers involved in the riots that had taken place. Actually the court to which we were assigned never met, and we just knocked around for a week enjoying ourselves. One morning, by private arrangement, we joined at sunrise the three-man crew of a fishing boat, and spent a long interesting day dragging nets offshore in the Irish Sea. There were no motor-driven fishing boats there at that time; we depended on sail, and enjoyed the quiet exhilaration of heeling to a brisk wind. We cooked a surprising quantity of

the catch for lunch on board, and needed no sauce to whet our appetites. Neither did we need to be rocked to sleep that night.

Not long afterwards we moved again to Rhyl, with a substantial contingent, hopefully believing we were soon to sail home. But again the days grew into weeks. Then we heard a rumour that the Pay Corps needed some assistant paymasters to handle the accounts of 5000 men sailing shortly on the "Olympic". Another unattached officer and I applied promptly, though we had no special accounting qualifications, and were agreeably surprised to be accepted.

We went to London immediately, and there had three memorable days. On the first we heard Nellie Melba as Marguerite in "Faust". She was 60, but from her voice might have been taken for 16. Ansseau, the "Belgian Caruso", sang opposite her. The second day we heard an equally distinguished cast play "Romeo and Juliet". Doris Keene was Juliet, but Ellen Terry, who was her nurse, still completely dominated the stage whenever she appeared. We finished this remarkable series the third day with Emmy Destinn singing "Madame Butterfly." Then we went on to Southampton, where we embarked June 6, 1919.

My troubles were not yet quite over. I had scarcely more than got aboard the "Olympic" when the chief paymaster, a man from Alberta named Pettigrew, sought me out to say the embarkation authorities had not received from London my papers and those of the other officer who had applied with me, and that we could not sail. For the professional bureaucrat, whether in the army or out of it, his records are his gods, and any suggestion that an enlisted man could live or move or have his being without his papers would be rank heresy. I had just sent a cable to my wife

reading, "Sailing today Olympic to Halifax," and was in no mood to cancel it. It was a big ship, and that was before the days of the all-pervading public address system. The two of us concerned decided to get lost separately until after the ship sailed. Pettigrew told me afterwards there had been much ado, the embarkation people insisting that we must be found and put ashore. Fortunately the ship's captain, who wanted no delay in sailing, had the last word,-- said our embarkation cards were in order, he had accepted them, and that was that.

Pettigrew was pleased to have me, as he was short-staffed, and invited me to share his cabin. Naturally no accommodation had been assigned to theoretically non-existent officers. I worked faithfully till we had completed checking the paybooks and accounts, and paying off all 5000 men. One amusing discovery was that the man with the largest balance was a Jew whose papers showed his birth place to be Aberdeen, Scotland.

We approached Halifax harbour in early morning in a dense fog, and saw nothing of it till the dock^{suddenly}/loomed up a few yards away. We marvelled at the expert seamanship that had brought that 50,000-ton ship to exactly the right place under such conditions. Looking over the rail I spied on the dock far below an officer of my own unit, who lived in Halifax. After shouted greetings my first question was, "Where is the best ice-cream shop in town?" On disembarking we reported first to the rail transport officer, who said he could not deal with unattached officers till he had arranged for the accommodation of all the units, and to come back about three o'clock in the afternoon. So we repaired to the ice-cream shop and ordered a dollar sundae

consisting of three small mountains of ice-cream in a boat-shaped dish, with a split banana and several other fruits around them. It was years since we had tasted anything made with real cream!

Promptly at 3 p.m. we reported again to the rail transport officer, only to be told that all the troop trains were filled to capacity, and we should have to get our own accommodation on the regular train next morning. We found that, too, was crowded. All we could get was a drawing room in the second section of the train. Our travel warrants covered only standard lower berths, and we had to pay the considerable difference out of our own pockets. After supper we went back aboard the "Olympic", helped ourselves to the best cabin we could find, and slept the sleep of injured innocence.

A further delay of a couple of hours took place in northern New Brunswick, when our train ran down and killed a man on a speeder, who apparently had not known that a second section of the train was still to come. When the train sat motionless for so long, we found ourselves feeling impatient at all this delay over one man. We were used to carrying on promptly more or less regardless of casualties. It came to me as a shock to realize that the war had dulled at least temporarily our sensibility to human tragedy. Fortunately this effect was short-lived.

These delays were hard on the folks who had assembled to welcome ~~me~~ me in Montreal — my wife, my parents, and other members of both families. Their trial of waiting patiently for many hours was accentuated by the insistence of the debarkation officers that I had not been on the "Olympic". But my folks had more faith in my cable than in the papers flourished by the officials.

We had a joyful reunion, and our cup of happiness overflowed when my brother arrived in a smaller ship, docking at Montreal a few days later.

Incidentally, I was astonished how Montreal had shrunk in my absence. Streets seemed narrower and distances shorter. My sojourns in London and Paris had altered my terms of reference!

I had looked forward to at least a couple of weeks with my family in Ste Anne de Bellevue, but an urgent message from the University of Alberta cut this to one week. My wife had spent most of the time I was overseas, in profitable study — a year of household science at Macdonald College (medallist of her class), and two years in the McGill Conservatory of Music, studying piano, organ, tympani, and composition. At McGill she won two scholarships, and at the end of her course obtained her licentiate both as performer and teacher. On receipt of my cable from Southampton she had gone to Woodstock, New Brunswick, packed up our things and shipped them to Edmonton. Now we headed west to start a new life.

On the way west we visited agricultural colleges at Guelph, Winnipeg, and Saskatoon, to let me see what was doing. At Saskatoon we were welcomed by John Bracken, professor of field husbandry, who later moved to Winnipeg as president of the Manitoba Agricultural College, and then became Premier of Manitoba, with the longest record in that office to date. At Saskatoon, also, I spent a most useful couple of hours with W.P. Thompson, who showed me his technique in crossing cereal plants. I used this almost at once on arriving in Edmonton, making barley crosses, one of which resulted in a smooth-awned variety still

in use. My successor at the University of Alberta named it "Newal" (combining the first syllables of Newton and Alberta).

We detrained at Edmonton in early morning at the beginning of July, 1919. It was a sparkling day, the kind that was to become so familiar to us there, and which I especially appreciated after years of comparatively dull weather in Belgium, northern France, and England. I remarked to my wife that for the first time I really understood the expression, "air like wine". Add to clean air and bright sunshine the deep blue skies punctuated by fleecy clouds, the fertile rolling parklands, the people full of the eager zest of youth, and it is no marvel that Alberta easily won our hearts. It was love at first sight, and it proved enduring.

Chapter VII

UNIVERSITY OF ALBERTA I

In 1919, Edmonton had a population of some 60,000. It sprawled over an enormous area on both banks of the North Saskatchewan River, linked by three bridges, of which the high level bridge over the great valley, with street-cars on the top deck, commanded a magnificent view in both directions. There were plenty of great open spaces, the result of real estate promotion in boom days, and the many short-cut paths through poplar-covered blocks gave one the feeling of being in the country. Now, over two-score years later, the spaces are filled with row upon row of wooden or stucco houses. Like the proverbial old-timer, I still prefer it as I first saw it!

The university, too, had ample space then on its 258-acre campus bordering the south bank of the river. Indeed, there was still room for the animal husbandry barns and the field husbandry experimental plots. The number of students had dropped to 300 at the low point of World War I, but shot up rapidly to some 1200 in the three years immediately following the war. Still, that was not too large for personal acquaintance with all members of the staff and a large proportion of the students.

Now my contract with Dr. Tory to help with the rush of returned soldiers into special courses came into effect, and I faced perhaps the busiest twelve months of my career. On July 3, 1919, the very day my wife and I arrived in Edmonton, I was introduced by Professor G.H. Cutler to a class of 60 soldier-students taking a five-month course specially designed for them, and the next day I took over for five periods a week, of which two were morning lectures of

one hour each and three were afternoon laboratory periods of two ~~tax~~ hours each.

Now I was to reap the benefit of my study of French grasses, since a large proportion of farm crops, notably the cereals, belong to the grass family; also the benefit of the refresher courses I had taken at Cambridge. All the same, I had to spend practically every evening that year preparing work for the next day. The laboratory periods for such a large group presented special problems, but I soon spotted the brighter members of the class and enlisted some of them as voluntary assistants. But I had to spend my spare hours scouring the fields and barn for plant specimens in large quantity for use at the next laboratory period. Some of the latter work could of course be done incidentally while supervising and making notes on the field experiments for which I had also been made responsible.

The soldiers' course was arranged in units of one month, so that new batches of returnees could be enrolled at the beginning of any month. Most of these students were serious about their work, but a few were merely enjoying five months with all found by the government. The number swelled to over 80 at the peak enrollment that summer and fall, but gradually diminished thereafter till the course wound up in the spring of 1920.

I had only a couple of short breaks that summer and fall. I went to Brooks in August, to inspect a number of alfalfa fields in the eastern irrigation district of the Canadian Pacific Railway. There I met Don Bark, the superintendent, a progressive and colorful figure imported from the United States. He was most anxious to help his farmer constituents, and was actively promoting

the production of alfalfa seed as a high-priced crop that could justify the cost of irrigation. A winter-hardy variety called Grimm he thought might be registered by the Canadian Seed Growers' Association and so command a higher ~~market~~ market price. This inspection trip, which I repeated in the succeeding ^{few} years, gave me a welcome opportunity to become acquainted with the "short grass" plains of south-eastern Alberta, and to pursue the survey of native grasses I had launched immediately upon arrival in the province.

That fall I made a quick trip northward to Swan River, in the Lesser Slave Lake district, the constituency of Hon. Mr. Côté, who had requested professional advice for some of his farmer constituents. Mr. Côté drove me around, and again I profited from seeing another type of farming, and collected wild grasses on the side. In the evening there was a "box social," to which we were invited. Boxes of eats prepared by the ladies were auctioned off to the men, the highest bidder in each case being rewarded by the lady's partnership at supper. The proceeds of the sale were devoted to some community activity. We being strangers had to make a shot in the dark! Most of the boxes sold for very modest amounts, between 50 cents and a dollar, but a few exciting moments came when two young men competed for the box of a young lady for whose favour they were rivals. One was reported to have sold a cow to provide himself with enough funds to outbid his competitor.

On my return home I found the regular university students had arrived, and I had to plunge at once into the task of developing a new course for the second year. Not surprisingly

it began with the botany of crop plants, the first term being devoted to the grass family, but covered also their adaptations and uses. It proved popular, and has been continued with only minor variations to this day. During the winter I also managed to prepare, in cooperation with Professor Cutler, a booklet called "Native Grasses of Alberta", in which I gave simple directions for identification and outlined a plan for a cooperative survey of the grasses of the province.

One weekend that winter I made a quick dash to Calgary, to judge a debate between Crescent Heights High School and the Medicine Hat High School. It took place at Crescent Heights, where the principal and instructor in mathematics was William Aberhart. Little did I know then how significantly he was to enter my life at a later stage.

I attended that season the opening meeting of the Men's Faculty Club, but thereafter missed all but the last one in spring. The combination of soldiers' ~~x~~ classes and regular classes left little time for social diversions. My wife entered at once into a full program of church work, including playing for the services. Other outlets for her music were a pianoforte recital for the Edmonton Women's Musical Club and the Alberta Music Festival, in which she won the gold medal in the pianoforte open class. She also contributed the words and music of a college song, "Alberta", to a special graduation number of "The Gateway", May 1920. This was a case of history repeating itself, as in 1912 her song "Macdonald" had been published in the spring number of "The Macdonald College Magazine". The latter song had won first prize in a competition sponsored by the Students' Council.

Altogether we were very happy in our new home in Edmonton, albeit the winter was unusually long and cold. One Sunday evening my wife went to church wearing my raccoon coat, which enveloped her from toe to crown, to protect her from the 50-below temperature as she walked to the street car and waited at transfer points. But the bracing air and bright sunshine were a wonderful change for me after several winters in dugouts and dampness.

One new organization whose meetings I did make a special effort to attend that first year was the Science Association of the University of Alberta. Dr. Tory, with his great zeal for scientific research, made it his business to initiate this association promptly upon his return from service with the Khaki University. At the organizing/^{meeting}we agreed to prepare a list of Alberta problems in need of research. This list was published, and remained a useful guide for years, as well as an argument for more government support. We also agreed to hold regular meetings for presentation of papers on their research by staff members. The first paper was given by Dr. J.B. Collip, the young professor of biochemistry, on the behaviour of blood corpuscles in freezing-point determinations. Soon afterwards Collip began his lifetime series of investigations on the hormone secretions of endocrine glands, which rocketed him to fame, beginning with his share in the discovery and preparation of insulin. He moved in turn to McGill and Western Ontario universities, and became first director of the Division of Medical Research of the National Council. In the Council I was again his colleague.

Another member of the Faculty of Medicine at the University of Alberta who contributed periodically to the proceedings of

the Science Association was Dr. R. F. Shaner, professor of anatomy. A quiet reserved type, bluntly honest in appraisals and impatient of superficial or trivial discussion, Shaner was a source of strength not only to his own faculty but to the university as a whole. I well remember more than one occasion in General Faculty Council meetings, when Shaner's face grew redder and redder as he listened to overmuch talk about inconsequential matters, until finally he rose to administer a cuietus in a few short, effective sentences. Years later, when I was president, I was to learn more of the esteem in which he, a non-medical Ph.D., was held by his medical colleagues. The dean of the faculty approached me with a proposal that the holders of medical degrees should be given a higher salary schedule than the rest of the university staff, because of their higher earning capacity outside the university and the consequent difficulty of getting the best men to accept or retain full-time university appointments. He added that he and his colleagues would like an exception made in the case of Shaner, who should receive the same scale of remuneration as men with medical degrees. Since my retirement, Shaner has included in his ~~annual~~ regular Christmas greeting an "annual report" marked by a conciseness unequalled in my experience.

But I must not yield to the temptation to digress further now with recollections of my early colleagues in the university — they were so many and so individual.

One of the new crops introduced to western Canada shortly before my arrival was sunflowers. It was proposed as an ensilage crop, to provide succulent feed for livestock during the long winters. It produced enormous tonnages on the fertile black

soil of central Alberta, but unlike corn, which it was intended to replace, it left the soil in poor condition for the following crop. Also, the silage made from it was definitely inferior to that made from corn. But these findings were still in the future, and meanwhile the questions to be answered aroused my interest in silage fermentation. I secured a number of 40-gallon barrels, and in the fall of 1919 packed them with various crops cut up in green condition. It was the following summer before I found time to analyse the ensilage. Dr. A.F.L. Lehmann, professor of chemistry and the soul of kindness, provided me with all necessary facilities. The results were interesting enough to write up as my first scientific paper, "The Quality of Silage Produced in Barrels," published in the Journal of the American Society of Agronomy. I continued the study for some years, using an improved type of experimental silo.

In the summer of 1920 I could breathe more freely, as both the soldiers and the regular students were gone. We had a number of interesting visitors, none more so than Mark Alfred Carleton, cerealist in the United States Department of Agriculture and author of ~~a~~ "The Small Grains", the text I had found by far the best and most useful in working up my courses the previous winter. E.A. Howes, dean of agriculture, drove us around the nearby countryside. Crossing the high level bridge, Carleton inquired about the imposing edifice at the north end. When informed it was the parliament building he exclaimed, "why, I thought Calgary was the capital of Alberta!" "So do the Calgary people think," shot back Dean Howes. One could not be long in Alberta without sensing the keen rivalry between Calgary and Edmonton. Calgarians solaced themselves with

the aphorism, "Edmonton is the capital but Calgary has the capital", while Edmontonians affected to deride Calgary by referring to it as "cow town", an allusion to the ranching industry of which it was the centre. Eventually both cities claimed the title of "oil capital of Canada".

M.O. Malte, Dominion Agrostologist, visited us that summer. His specialty was grasses, and he was pleased to find I could converse in his language. Evidently he remembered this when it came to recommending a successor a few years later. So did another visitor, Charles E. Saunders, my former chief at Ottawa, with whom I spent considerable time going over our plots. E.C. Stakman, professor of plant pathology in the University of Minnesota, came along, too, making his first visit to Alberta, and so began a lifelong friendship which his wife also shared with my wife and me. My sister Margaret had already begun her doctorate work under Stakman's guidance, and that made the introduction easier.

W.P. Fraser, of the University of Saskatchewan, accompanied Stakman as far as Edmonton, whence Fraser and I were to start a botanizing trip to the Peace River district. We took the leisurely train of the Edmonton, Dunvegan, and British Columbia Railway to Peace River Crossing, then the terminus, but didn't quite make it. Heavy rains had caused a landslide which blocked the last few miles. An assortment of Model T vehicles picked us up. The one Fraser and I happened to select started late, but the driver was determined to get there first, and passed everything on the road, even at the cost of mowing down young poplars along the margin. We began to suspect all was not right with the driver, and were

sure of this when we smelt a strong odour of alcohol and I found my seat suddenly ~~xxxx~~ cool. A bottle of whiskey we had not noticed on the back seat had become uncorked by our violent lurching. When I unwisely brought this to the attention of the driver he exclaimed, "Let's kill it!" And the two in the front seat proceeded to do just that. Fortunately there was not too much left in the bottle, but not much was required to give the driver a final filip. The enormous hill leading down to the town of Peace River Crossing at the bottom of the valley ended in a series of switch-backs. Since we had one or two cars left to pass, our driver cut them off by driving over the bank from one switch-back to the next below. Miraculously we reached the bottom right side up.

Accommodation in the ~~town~~ was primitive and crowded, but we thought little of that in the excitement of botanizing on the slopes of the giant valley, one of the great sights of the world. I understood as never before the feeling of Robert Service when he wrote:

"I've stood in some mighty-mouthed hollow
That's plumb-full of hush to the brim."

We were surprised to find the vegetation very similar to that of the dry plains of the south, and concluded that the greater productivity of the Peace River district must be due not so much to greater rainfall as to more economical use of water, there being less loss by evaporation and transpiration in that cooler region.

After an evening and a day ~~xxxxxxxx~~ of collecting at Peace River Crossing, we hired another Model T, with a sober driver and his wife, to make the cross-country trip to Spirit River,

botanizing as we went. The trip involved ferrying across the Peace at the start and again at Dunvegan. Construction of rail and road bridges at Peace River Crossing had begun, and when these were completed the word "Crossing" as part of the name fell into disuse. Originally it had been called Peace River Landing, because river boats and barges tied up there. When this function lapsed and the ferry became more important, the name was changed to Peace River Crossing. Then about 1916 the postal department complained that this name was too long to go on its date stamp. A mass meeting of citizens was called, at which a majority voted for "Peace River", though a more percipient minority tried for "Peace Crossing", which would have preserved the identity of the town, now easily confused with the river itself or the district it drains. But the best the minority could do was to stave off a move for "Peaceville" — no trifling accomplishment! Mr. Norman Soars, an old-timer who was present, lately gave me an account of the meeting. The fact that common usage was still holding to the longer name at the time of our visit in 1920 — indeed, "Peace River Crossing" was printed on our railway tickets — indicates that the instinct of the community was averse to the lapse into comparative anonymity.

On our way to Dunvegan we passed Waterhole, so named from a local stock-watering pond. It grieved me when years later the local inhabitants changed that distinctive and meaningful name to the commonplace one of Fairview. When I mentioned this to Dr. Walter C. Murray, president of the University of Saskatchewan, he lamented that the same thing had happened in a number of places under the influence of misguided civic pride, though he did

sympathize with the community that changed its name from Pile o' Bones to Regina! But no such extenuating circumstances could be claimed for the change from Rat Portage to Brandon. Sad to say, this unimaginative vandalism is still with us, and operating in high places. Consider **S**astle Mountain, which anyone who saw it must have felt to be perfectly named. Now it is Mount Eisenhower. It would have done no less honour to this great man to have called it Eisenhower Castle, thus at the same time preserving its unique identity. Or consider the name of our beloved country, Dominion of Canada, based on the glorious prophecy, "She shall have dominion from sea to sea." Now we have become plain Canada, to soothe the vanity of certain of our unrepresentatives at Ottawa, who felt that the word "Dominion" had taken on political connotations suggesting less than complete independence. But so far they have not had much success in getting us to call July 1st Canada Day rather than Dominion Day.

On our cross-country trip from Peace River to Spirit River the vegetation continued to be essentially that of dry land, making the importance of a water hole quite apparent.

Another day of botanizing around Spirit River, and then the rains came. We sat in the little hotel for two days. The time was not entirely wasted, as we checked doubtful specimens against botanical keys and revised our notes. But when on the third morning the rain still showed no sign of letting up and the semi-weekly train heading back to Edmonton came along, we decided to get on board rather than wait for the train going the other direction to Grande Prairie, as we had originally intended. All went well as far as Swan River, on Lesser Slave Lake, when we

were informed that the train would remain there overnight because of a washout ~~Ma~~ ahead. The hospitable inhabitants put on a dance for the passengers, which we watched awhile but did not join in.

Next morning to our great joy the sun came out brightly, and after a good breakfast on the train we started gaily on our way. Alas, our joy was short-lived! We had only well started when we stopped again, and a trainman came through calling, "All passengers please get off on the left side of the train, carrying their hand baggage, and go forward to meet a new train." We walked for seven miles over the railway ties, sometimes suspended over thin air, while the waves rolled through the space where the embankment should have been. After the first few miles our fortitude and resolution began to ebb. We decided to jettison our cargo of plant specimens, hoping to repeat the foray some day and depending meanwhile on the full notes we had made. ~~From~~^{From} then on we carried only our coats and handbags. I had only one bag, but Fraser had two. Years later he told me he had never travelled again with more than one bag. Fortunately there had been few women and children on board, and the trainmen did what they could to help these with a small push-car.

At last we did reach the relief train, consisting of two antique coaches, half of one being a baggage compartment. This was a sorry exchange for our train of three sleepers, two day coaches, a diner, and a baggage car. We were packed like sardines the rest of the way. Still worse was the lack of anything to eat, except what we could ~~scrounge~~^{find} at way stations, which for Fraser and me consisted of one small package of biscuits. It was far into the night when we reached Edmonton, after a day to remember but not to repeat.

That summer of 1920 I also made the first of a number of visits to the farm of H.G.L. Strange, at Fenn, Alberta. This was the same "major" mentioned as losing an inconvenient file in a convenient shell-hole. He had shown the same practical sense in selecting a farm. In the land registry office he gained access to a list of all the mortgage foreclosures in the province during the preceding ten years. He stuck a pin in the map at each location, and when he got through found a little island free of pins with Fenn at the centre. Thither he bent his steps and there he located. He knew little about farming but was eager to learn. He became an avid student of government reports and bulletins, and cultivated the acquaintance of professors of agriculture as assiduously as he cultivated his land. To energy and inquisitiveness he added an unusual gift of words, and not surprisingly became in time the president of the Canadian Seed Growers Association and prominent in other farmers' organizations. His wife, Kathleen Redman Strange, was quite able to hold her own in any battle of words. Her first book on their Canadian experiences, "With The West in Her Eyes," was published in 1937. I have the pleasantest recollections of their joint hospitality.

In the university we initiated that first year many enduring friendships. I have mentioned the kindness of Dr. Lehmann, professor of chemistry. His wife Caroline was known appropriately as the "angel of the campus". Nowhere did we feel more at home than in the circle of this benevolent couple and their two sons and one daughter.

Language had a natural attraction for both my wife and me, and we gravitated easily towards its expositors. Our acquaintance

~~Our acquaintance~~ with Dr. E.K. Broadus, the scholarly professor of English, and his equally talented wife, Eleanor Hammond Broadus, began a little tentatively, as they were not so immediately approachable, but ripened into friendship in later years. Mrs. Broadus, an erudite student of things Italian, delighted university audiences with her lectures on Italian art, illustrated by good lantern slides, which she generously left with the university. She also made an English translation of Papini's "Dante Vivo", which drew from the author a letter of warm praise. Broadus died prematurely, and Mrs. Broadus returned to the neighbourhood of Radcliffe, her old college, but my wife and she rarely failed to get together in Boston once a year. Broadus had spent a sabbatical year at Merton College, Oxford, and when I spent a week in that college many years later I found he was still remembered appreciatively and his scholarship held in high regard.

In the department of modern languages there were two distinctive figures that Dr. Tory had brought out of retirement as war-time relief, and who stayed on afterwards. John Firman Coar had been so long on the staff of a German university that he spoke English with a German accent. Though sometimes his flights of fancy gave pause to his friends, he was in everything pertaining to German literature and Germany itself, thoroughly knowledgeable. He amused us once by replying to my wife's inquiry as to whether he would have tea, coffee, or milk with his meal, "There are only two drinks: coffee and coffee substitutes." My contact with him came the more promptly because the doctorate work to which I looked forward required a knowledge of German as well as French. I sat in Dr. Coar's first-year class as often as the pressure of

my own teaching work would allow.

In that class I met Reuben B. Sandin, a recent graduate and an assistant in chemistry, who shared my aspirations for graduate study. He went to Chicago to work with Stieglitz, and won not only his degree but also the hand of Stieglitz' secretary in marriage. He returned to Alberta to become a legend as a teacher of organic chemistry. His teaching was the more vital because reinforced by successful research. Many professional honours came to him, and attractive offers to go elsewhere, but he could not be lured away from his alma mater. He showed the same loyalty in his friendship to me.

Meanwhile my wife had been attending with great enthusiasm a course in French given by Auguste Paul Pelluet. She still keeps handy his excellent little textbook on French phonetics. In his younger days Mr. Pelluet had been a grand opera singer, and had grown to look like Mephistopheles in Faust, one of his favourite roles. This was followed by a second career as singing teacher in the London Academy of Music. Eventually he and his wife decided to retire to Athabasca Landing, in north-central Alberta, to which their two elder sons had emigrated and there taken up farming. Soon came World War I, and their sons both enlisted and were killed in action. The final disaster came when the sons' farm home, which the parents had occupied to care for during the war, was burned with the loss of all its contents, including Mr. Pelluet's entire library and the voluminous notes he had prepared as a basis for a book on singing. At that juncture the university's need for a French teacher was opportune, and profitable to both parties. Mr. Pelluet's natural gift for

teaching was enhanced by his dramatic training and ability. His words, gestures, and expressive features were alive with meaning. Just to hear him say, Noblesse oblige, made one want to rise up and do something about it. He gave singing lessons to a limited number of students in Edmonton, among them my wife.

Another picturesque character in the department of modern languages was Edouard Sonet. He had been on the staff a short time before the war, but returned to his homeland to enlist in the French army. He came back safely to a long period of service as professor of French. His Gallic temperament, coupled with his authoritative bearing, manner, and voice of a sergeant-major, made him a force on the campus. Such was the carrying quality of his voice that ^{Harry Lister,} the caretaker of the Arts building ~~made a facetious claim~~ in which he lectured, made facetious claim to a diploma in French, on the basis of several years extramural instruction by Dr. Sonet!

Dr. and Mrs. J.M. MacEachran I mention with special appreciation. He joined the university in the second year of its existence, as professor of philosophy. Dr. Tory soon showed his confidence by giving him the additional post of provost of the university, with general oversight of student affairs and discipline. He quickly established himself in the confidence and respect of the students, much more as a friendly adviser than as a disciplinarian. His wife, as Miss Elizabeth J. Russell, a comparative newcomer from Scotland, had been invited by Dr. Tory to become dietician and housekeeper of the university residences, a position for which she was well qualified by training, character, and personality. There, of course, she worked closely with Dr. MacEachran in mothering student affairs, but it was not till a dozen or so years later that

it occurred to him, who seemed a confirmed bachelor, that she would make him an admirable wife! Now jointly with him she continued to entertain staff and students over cups of tea with the same gracious hospitality that had marked her years in Athabasca Hall. We were happy to be included in their circle of friends. MacEachran was provost some 35 years. His term in this office extended well into my presidency, and I could always depend upon his judgment, understanding, and loyal support.*

* ^{add to} To his many earlier kindnesses, Dr. MacEachran has lately, at age 88, when suffering from a temporary eye disability, laboriously read my entire manuscript, checking particularly my references to early happenings at the University of Alberta.

Ernest W. Sheldon, professor of mathematics, was the nearest approach to a professional committee man I have known. Most of us share the sentiments of a former warden of Royal Victoria College, McGill University, who said on retiring from the post: "They say heaven is a place where there are no partings, but I would rather look forward to a place where there are no meetings." Not so Dr. Sheldon. He was at his best presiding over a committee meeting. His favourite project was the Freshmen Committee: indeed, for the first 25 years of its history, the name of that committee was virtually synonymous with Sheldon. He never tired of counselling freshmen whose marks were lagging, and those who were put on probation or even asked to withdraw from the university knew at least that Sheldon had laboured over them conscientiously and that they had been fairly dealt with. Painsstaking attention to detail and unswerving loyalty to the university and its president were among Sheldon's outstanding qualities.

D.E. Cameron, the university librarian, did not disguise his relish for the resemblance of his name to "decameron", however much out of character these tales were for an ordained minister, Edinburgh trained. A bibliophile before a librarian, he was reputed to read all the books as they arrived, and really deserved his campus soubriquet of "walking encyclopedia". As a minister he was often called upon to officiate at weddings and funerals in the university circle, where his fatherly aspect, quiet voice, and diction at once scholarly and sympathetic, were always in keeping with the occasion. He loved a well-turned phrase or apt simile, and when something really good occurred to him as he was preparing a speech, he took great pains to give it a climactic setting. He had, too, a strong vein of humour. Once a farmer visitor meeting him on the campus inquired where the pig department was. Cameron gave him the needed direction, but a moment later called after him, "Is it the pigs themselves you want to see, or just the professors?" "Oh, just the professors," said the farmer, and went chuckling on his way. Before leaving D.E. Cameron, I should mention the pleasure my wife and I shared as guests of his brother, the Master of Gonville and Caius, when in 1948 the University of Cambridge chose to honour the University of Alberta by conferring on me the honorary degree of Doctor of Science.

Then of course there was Ernest Albert Howes, dean of the faculty of agriculture, already mentioned as one of the young men selected by James W. Robertson for special training to become principals of the first consolidated schools and teachers of nature study. As the years went on I spent many a quarter hour

in his office swapping yarns of early days on the farm. Our backgrounds had been quite similar, except that he grew up on the Ontario side of the Ottawa River, while Quebec was my native province. When he began to write down his stories, he gave me each chapter to read as he proceeded. Eventually they were published by Oxford University Press under the title, "With a Glance Backward." He had a ready tongue, spiced with Irish wit, and an affable disposition, all of which made him a boon companion and a highly popular member of the community. Some of the little jokes he originated went far afield, becoming almost standard "wise cracks", for example his description of golf as the "foot and mouth disease -- walk all day and talk all night,"* ~~AND~~ and

*Foot and mouth disease is a serious plague of farm live stock.

his definition of a pessimist as "a man who wears both belt and braces."

In the summer of 1929, Dean Howes and the dean of forestry in the University of Idaho were selected by the International Joint Commission to look into the claims of American farmers in the Columbia River valley that their crops were being damaged by fumes from the smelter at Trail, British Columbia. Just before he was due to undertake this mission, Howes attended a convention in Winnipeg, a city that can be really hot in summer, and injudicious exposure without a hat gave him a slight sunstroke. I agreed to pinch hit for him during the first month. It was a delicate mission, as the inclination of the farmers to "farm the smelters" in various parts of the western United States had become traditional. Their claims had been blown up out of all reason. I was able to

Help in planning the thorough investigation then being initiated by the National Research Council of Canada, but was glad to relinquish to Dean Howes and his American colleague the responsibility for recommending an interim settlement. Fortunately for them, they also were out of the district before their report was made public. They recommended what was probably a just and reasonable award, but it was only a small fraction of what the irate farmers had claimed. Dean Howes, with his ready sympathy and his understanding of farm problems, had in the course of the survey made a great hit with the farmers, but he was now to see his popularity plummet to absolute zero — a brand new experience for him!

The smelter controversy had a happy ending when the mining company installed expensive equipment to remove the sulphur oxides from the fumes belching out of their smoke ~~stacks~~ stacks, which equipment paid for itself in the long run, as they used the sulphur to initiate a profitable fertilizer industry. This project took some years to bring into full operation, and meanwhile they paid their American farmer neighbours damages several times the amount recommended by the deans.

Time and space fail me to tell of ^{the} many other colleagues and and friends in the university with whom I had pleasant and profitable association. Some of them will appear later in my story as actors in particular scenes. But here I must mention Colonel F.H. Mewburn, the first professor of surgery, and one of the most striking characters I have known. I have heard him aptly described as the prototype of Ralph Connor's "Doctor". It was perhaps an instinctive response to his commanding

personality that we continued to call him "Colonel" Mewburn to the end of his long years of civilian practice at age 80. Lethbridge had been his headquarters, and in early days he made his rounds on horseback. But times and his habits had changed before he came to Edmonton. He drove to and from the university and the University Hospital in the back seat of a Model T Ford sedan, with a liveried chauffeur in the front seat, a small vase of fresh flowers attached to the inside wall, himself immaculately dressed, moustache carefully waxed, and a carnation in his button-hole, the whole a picture of dignity and elegance. But at heart he remained the ranchers' doctor, and the language of the range often broke through. The only time I came under his personal care, for some minor surgery, I went off my feed temporarily, and resorted to swallowing raw eggs, a trick I had learned on the farm. It is a wonderful way to get quick and substantial nourishment — if you are equal to this unconventional mode of ingestion. Coming into my room, Colonel Mewburn noticed a glass into which at my request a nurse had just cracked two raw eggs. "What are you going to do with those?" he asked. "Swallow them," I replied. "If you can swallow those," he exclaimed, "you should be able to eat the hind leg of the devil!"

Minnesota Epoch

In 1920-22, I spent the two winter sessions of about $8\frac{1}{2}$ months each at the University of Minnesota. The summer of 1921 I spent in Edmonton, looking after my share of the experimental and field work of the department of field husbandry. In June, 1922, I returned to Edmonton for keeps. My master's thesis, 1921, was a prime factor in catching Dr. Tory's attention, and leading

to that close association which determined the direction of my subsequent professional life. The time spent in Minnesota thus marked the beginning of a new era in my history, and deserves to be called an epoch.

At the close of world war I, apart from the short courses I had shared in giving, there was no elaborate system of educational aid to veterans such as carried many through college and even to higher degrees after World war II. We received a small gratuity on discharge, and that was all. Even the National Research Council scholarships for post-graduate study in science, were not available to married men. Both my sisters had been helped by these scholarships, while I, who had a wife to support in addition to myself, was denied such help. Later I had the satisfaction of taking a hand in the abolition of this archaic restriction. It was in the tradition of the Oxford and Cambridge colleges, which formerly required fellows to maintain celibacy, a custom which in turn harked back to the medieval monasteries, then the seats of higher learning.

Fortunately American universities were hampered by no such traditions. On the recommendations of my undergraduate teachers, including James W. Robertson, I was awarded a Shevlin fellowship by the University of Minnesota, and this was renewed a second year. Fortunately, too, my wife was well qualified and willing to work, and supported herself by teaching school for the two sessions we were there. Fellows were exempt from tuition fees, and living costs were comparatively low. Thus the fellowship of 500 American dollars was enough to cover my own local expenses, and saved transferring Canadian funds then at discounts up to 20 percent.

The Marshall Plan and the liberal aid to under-developed countries which have characterized American policy since World War II were no surprise to us, who had first-hand experience of the generosity and hospitality of our good neighbours. They made us feel entirely welcome and at home in their university circle.

I found myself in a coterie of brilliant young men, all ready and willing to help. Election to the Biological Club, of staff and graduate students, soon widened my contacts. My bright, particular star was H.A. Gortner, head of the division of agricultural biochemistry. I have never met a mind quicker or more fertile in ideas or more enthusiastic in testing them. He was in love with his job, as he proved in the second year I was there by rejecting an invitation to organize and direct a large industrial laboratory at several times the salary he was getting in the university. The graduate students organized a deputation to the administrative authorities to ask for consideration of Gortner's case. I was elected chairman of the delegation and later president of the Graduate Student Society which grew out of it. The administration was sympathetic and, though nothing could be done immediately, the following year his salary was approximately doubled. Another staff member ~~very helpful to me was R.B. Harvey,~~ professor of plant physiology, who had himself ~~done~~ some work in the field of frost resistance, and who was adept at contriving special apparatus.

I launched my own investigation of the nature of frost resistance soon after reaching Minnesota. With the kind cooperation of H.K. Hayes, professor of plant breeding, we selected a number of varieties of winter wheat ranging from very winter-hardy to

very frost-susceptible. Hayes allowed me to sample the outside or buffer rows of his plots of these varieties. This I did in November and December. It was a cold job, brushing off the snow and clipping the leaves at the soil surface, sorting and discarding dead leaves or portions of leaves as I went along. This had to be done outside to avoid changes induced by laboratory temperatures, which might ^{vitiate} the analytical results. My raccoon fur coat was a good friend on these occasions. I became well used to such exposure in succeeding years, both in Minnesota and Alberta, when I and my colleagues took numerous samples in the fall and at intervals all through the winter. By the same token, such tests or analyses as were done with fresh leaves had to be completed promptly, even if it meant working all through the night, as I did one Saturday in Minnesota with my long-suffering wife as company.

Part of the analyses was done with sap expressed from the leaves, and this led to the discovery that fully winter-hardened tissues held their moisture with great force. Indeed, our laboratory press, exerting a pressure of 30 tons, which worked out at 400 atmospheres, proved incapable of expressing more than a few drops of liquid from 100 grams of leaves containing 70 per cent moisture, unless the leaves were first killed by some agent such as heat. This led me to a study of plant colloids, those gluelike substances which have a great capacity for absorbing and holding moisture in an inactive state. With Gortner I developed a simple method for determining this bound water.

I used the term "bound water" without thinking particularly about it, and was surprised when it ran rapidly through the biochemical literature. Only two other terms do I remember

using initially, in the same casual way, which caught on similarly. In developing my first course on field crops in 1919, I used the term "fatuoid" to describe a puzzling intermediate form between cultivated and wild oats, the latter having the specific name of fatua. This quite natural adaptation was picked up by one of my early students, C.L. Huskins, who later made it official in the course of his thorough genetic investigation of this form. The third and last of my verbal inventions came when Gordon Crawford, of the Dominion Entomological Branch, visited me in the National Research Laboratories, Ottawa, to say a committee was revising various control acts, and needed a single term to cover insecticides, fungicides, and herbicides. I immediately suggested "pesticides". This was accepted and soon came into worldwide use.

Towards the end of the first winter in Minnesota, I marshalled the results of my work up to that point into a master's thesis. We bought a portable typewriter, then a comparative novelty, and my wife easily mastered its use with her piano fingers. She typed my thesis, and though that was the only major typing job for me she was called upon to do, the skill then acquired has been of permanent use to her in her own work. I learned to type when I was advertising manager of the Macdonald College Magazine in my undergraduate days, and have found it similarly useful, though I never achieved more than limited proficiency.

In the second winter in Minnesota I completed only the work which had to be done with fresh plant materials, and brought the dried residues to Edmonton for more extended analyses. By this time I had been able to fit up a laboratory of my own, and was no longer dependent on the generosity of the professor of chemistry.

Much of the equipment my students and I built with our own hands, a beneficial experience for all of us. Indeed, for several years no new graduate student was allowed to consider himself initiated until he had built one major piece of equipment. One is tempted to philosophize that present-day students have it too easy!

In the third winter of my graduate work, this one spent in Edmonton, I wrote my doctoral dissertation, which was published later by the University of Alberta as a research bulletin. I presented it to the University of Minnesota in June, 1923, at which time I also took the final examinations. Between that time and the degree-conferring exercises I went with a group of Minnesotans to spend several days at the University of Wisconsin, Madison, attending the first Colloid Symposium. There I met a number of chemists of international renown, among them The Svedberg, of Uppsala, who was spending a year there and had installed one of his ultracentrifuges. This type of equipment was to play an important role in our own studies of wheat proteins. The only other Canadian present at the Symposium was E.F. Burton, professor of physics in the University of Toronto, with whom I was destined to have many further contacts, culminating in several years together on the National Research Council of Canada.

In Minnesota my wife, besides teaching school in Minneapolis, found many opportunities for artistic development and expression. She took a Saturday morning course in ceramics, in which she produced several beautiful pieces we still have. She played tympani one year in the university orchestra, and the piano accompaniments for the violin solos of its conductor, Abe Pepinsky, at a university banquet. On invitation of the University Women's

Club she recited for them a group of W.H. Drummond's "Habitant" poems, familiar to her as she had used one of them to win an elocution contest at Macdonald College in 1912. She enjoyed the companionship of Louise Stakman, a woman of outstandingly clear and discerning outlook on life. Together they took season tickets for the concerts of the Minneapolis Symphony Orchestra.

In our second year there we reached another crossroads of decision. E.S. Archibald, director of the Dominion Experimental Farms, wrote me that M.O. Malte had recommended me to succeed him as Dominion Agrostologist, and that he concurred in this recommendation and would like to put my name before the Civil Service Commission for appointment. While I was still meditating upon this, Archibald wrote again that C.E. Saunders, the Dominion Cerealist, had decided to retire and had also recommended me. He, Archibald, expected more difficulty in finding a suitable candidate for this position, and would be pleased if I selected it.

These senior positions sounded very attractive, with their responsibility for supervising experimental work from coast to coast, but I realized that neither would leave me personally much time or opportunity for research. Moreover, I was shy of returning to the Civil Service, where I had previously been irked by red tape and the patronage system. The Christmas vacation was at hand, and I used it to make a triangle tour: Edmonton - Ottawa - St. Paul, to discuss the question. Dr. Tory offered to promote me to full professorship, and I practically decided on this, though Dr. Archibald asked me to leave the question open if possible, and he visited me in Edmonton the following summer to pursue his proposal.

To cap the situation, before we left the University of Minnesota

in the spring, Dr. Gortner invited me to become an assistant professor in his department, at the same salary Dr. Tory had offered me for full professorship in the University of Alberta. This was the greatest temptation of all, as both my wife and I had been supremely happy in the Twin Cities of Minnesota. My bent towards research had had, and presumably would continue to have, full scope, while the richly developed culture of that environment had been a joy to my wife, with her musical and artistic talents. However, in the end we both voted for Alberta. We had gone there the first time because Dr. Tory had promised me job security while taking graduate work. Now we returned because we had fallen in love with Alberta and felt the challenge of helping to build a new community.

All the same, the University of Minnesota had established a firm hold on our grateful affection, and we enjoyed very much our subsequent visits there. It was a special joy to me to be invited to give the main address, on "Research, the road to Knowledge," at the Semi-Centennial Dinner on June 14, 1935. Almost a score of years later I was called back again, for the last time officially, to receive an honorary degree, the culmination of many kindnesses shown me there.

Moreover, our sojourn in the United States had dispelled permanently any narrow nationalism we might ~~have~~ otherwise have cherished. Now, many years later, we are fully ready to accept the fact of geography that Britain is part of Europe and Canada part of North America. Our closer economic union with the United States seems not only inevitable but also desirable. We do not hold with those who fear that economic union would necessarily

lead to political union, and even if it did there would still be no need to fear the loss of our identity. Have England, Scotland, Wales, and Ireland ceased to be English, Scottish, Welsh, and Irish after centuries of union? We share rather the vision of "one world" glimpsed by Wendell Willkie, a vision becoming daily more urgent of realization as a constructive alternative to a mad power struggle.

Plant Science Department

In the summer of 1924, G.H. Cutler, head of the department of field husbandry in the University of Alberta, moved to an American institution, and I succeeded him. I proceeded to reorganize the department into four main divisions: cereal crop breeding, forage crop breeding, plant pathology, and plant biochemistry, with a division of field plot experiments serving them all. The name of the department was changed to Field Crops, and eventually to the more comprehensive one of Plant Science.

This reorganization, with its attempted integration of aspects of plant science usually reserved to separate departments, reflected my own views respecting the visible trend to narrow specialism and its accompanying division of science into more or less watertight compartments. It is a human weakness ~~to build up~~ for each individual to build up his own show with little regard to its relation to, or dependence upon, its neighbours. we see the same thing in the political field, where narrow nationalism, and especially economic nationalism, has been a disastrous curb on world progress and human welfare. Happily there is now ^agrowing recognition of our essential interdependence. In science we cannot afford to disregard the fundamental unity of nature in our efforts to understand and conform to her laws.

I was to discover that any plan can succeed only to the extent that the participants have a mind to work together. One cannot do much to change the character of a lone wolf; one should keep the organization flexible enough to make the best use of both talents and temperaments of individual members. But on the whole our plan worked well, especially in the field of research, where we carried out a well integrated program. In teaching it proved more difficult to maintain a broad outlook in, or approach to, each course. We planned a general course for first-year students, with all senior members of the department sharing in the instruction. The object was twofold: (1) to let the students become acquainted with the senior men promptly, (2) to give the students an over-all view of the multiple scientific basis of crop production. In the latter object we were only partially successful. The tendency was for individuals to give short courses in their own specialty without emphasizing its relation to the whole picture. We reverted to the former scheme of having one senior man give the entire course, trusting him to keep his treatment of the subject as well balanced as possible. In my own senior-year course on the principles and practice of crop production I had full scope for testing my instructional theories, and they worked reasonably well.

The spirit of research was strong in our department, and we quickly built up a group of about ten graduate students. At that time we did not carry them beyond the master's degree, but we required two years' work for this, paying them small salaries as research assistants. Also we developed good connections with other and larger universities, whereby our students could register with them for the doctor's degree while doing much of their work

in our own laboratories. In this way I was able to train a hand-picked group as a nucleus for the staff of the biology division of the National Research Council, which I was looking forward to organizing in due course. J.G. Malloch got his degree from the University of Minnesota, where he worked with H.A. Gortner and ~~ex~~ C.H. Bailey; W.H. Cook studied with C.L. Alsberg at Stanford University; J.A. Anderson with A.G. Perkin at Leeds; A.G. McCalla with D.H. Hoagland at the University of California and The Svedberg at Uppsala; J.W. Hopkins with R.A. Fisher at Rothamsted.

All these men have made their mark. Malloch has been for many years Chief Scientific Liaison Officer of the National Research Council in Europe. In 1962 he moved his office from London to Paris, when he was formally appointed Scientific Counsellor to the Canadian Embassy and to the Canadian delegation to OECD and NATO. He had been a member of the OECD Committee on Scientific Research from its inception, and its chairman for five years. This gave him opportunity to persuade OECD countries to undertake cooperative research, the advantages of which he had learned in his Canadian experience with associate committees of the National Research Council. He reported finding useful also my maxim that he who goes to a committee meeting armed with a well-considered and carefully prepared plan of action not only saves time for the committee but also gets more of his own way.

Cook succeeded me as director of the division of biology (later named the division of biosciences) in the National Research Laboratories, and in 1962 was elected President of the Royal Society of Canada. Anderson was long the chief chemist of the Board of Grain Commissioners in Winnipeg, and after a short term

as director of the Canada Department of Agriculture Research Station in the same city was appointed in January, 1963, Director General, Research Branch, Canada Department of Agriculture. He was president of the American Association of Cereal Chemists in 1952-53. McCalla is dean of the Faculty of Graduate Studies in the University of Alberta and has served several years as a member of the National Research Council. Hopkins is head of the Biometrics Section of the National Research Laboratories, and a frequent adviser to government departments in statistical matters.

Cook and Anderson were the first two appointed to the permanent staff of my division in the National Research Laboratories. Cook was one of those rare spirits to whom formal schooling is of minor importance. He grew up in the range country of southern Alberta, where he learned to ride broncos, round up cattle, and rope calves, but his first serious academic experience was in the School of Agriculture at Claresholm. From there he came to the University of Alberta, where I soon spotted him and engaged him for summer work and later as a graduate assistant, much to the consternation of an older, serious-minded student in my laboratory, who had known Cook mainly for the latter's merry pranks. This seasoning of lightheartedness was indeed part of the secret of Cook's enormous capacity for work. His program included advanced physical chemistry, and Professor E.H. Boomer told me that Cook was the ablest student he had ever had. When I recommended Cook to Dr. Tory for appointment, I ventured one of the few prophecies I have ever made by saying, "This man will succeed me as director of the division." Ten years later he did.

Boomer himself, it should be said in passing, was an outstanding

leader in his field. Alas, he died prematurely, though not before making a notable contribution to the development of the atomic energy plant at Chalk River. There his sound theory and brilliant intuition enabled him to project mechanical design well beyond the limits of existing engineering experience. He was one of those selected to fly to Germany at the close of World War II to glean any useful secrets in their scientific developments. He was able to make his report before he succumbed to the strain on his heart.

Anderson's background was quite different from Cook's. He was the son of a clergyman, and had good English schooling before his adventurous spirit led him at age 19 to migrate on his own to Canada. In Alberta he learned to drive the large horse-drawn outfits then in use on wheat farms. Soon his desire for greater mastery of agriculture led him to the School of Agriculture at Olds. Here one day in the chemical laboratory his experiment blew up, blinding him in one eye. Right then he decided to become a chemist and master this thing that had treated him so badly. What better illustration of the spirit that always animated him? He came to the university and, like his classmate Cook, fell into my hands. In a letter dated January 18, 1963, telling me he had just learned of his selection for the post of Director General, Anderson generously added:

"I hope you will be pleased, — indeed, I know you will. Your men, Dr. Cook, Dr. McCalla, and myself, now direct a major part of the agricultural research in this country. And I am quite sure it was your ability in teaching us administration as well as guiding us in our research that started us in the right direction."

Greater loyalty than this could no man ask!

As mentioned ^{earlier,} I had come to Dr. Tory's favourable attention

through my master's thesis, presented to the University of Minnesota in 1921 and published in the Journal of Agricultural Science by the Cambridge University Press. Dr. Tory apparently thought it promising, and recommended me to the National Research Council for an "assisted research grant". When he became chairman of the Council in 1923 and president in 1924, he not only saw to it that I had continued help but adopted me as his adviser in matters pertaining to agricultural research projects, especially in the prairie provinces, which the Council undertook to support. This relationship continued to the end of his presidency in 1935. When the construction of the National Research Laboratories was authorized in 1928, I was the first director of a division to be appointed, though we agreed that until the new laboratory buildings at Ottawa were ready for occupancy, it would be advantageous for me to remain in my post at the University of Alberta, where I could more conveniently keep an eye on a number of large cooperative projects then under way in the west. By arrangement with Dr. R.C. Wallace, who succeeded Dr. Tory as president of the University of Alberta in 1928, I was therefore appointed on a half-time basis. We did not foresee the long delay in the completion of the laboratories caused by the onset of the Great Depression, and it was not till 1932 that I moved to Ottawa. Even then there was some delay in the confirmation of my appointment to a full-time basis, inexplicable until Prime Minister R.B. Bennett wrote Dr. Tory that he had wished to invite me to become Deputy Minister of Agriculture, but had at length concluded that I would prefer to devote myself to research.

Meanwhile, generous help from the National Research Council

during my extended stay at the University of Alberta made possible the most fruitful period of my life from the research point of view. Hours of work meant nothing in those days. To get an important experiment past a critical stage, a team often stayed in the laboratory till the small hours of the morning. With the help of these keen graduate students I developed biochemical studies of the plant in relation to its environment. Beginning with resistance to frost, we proceeded rather naturally through resistance to drought and disease, with a special branch into wheat quality as affected by environmental factors.

While our biochemical investigations did unravel a good many threads in nature's tangled skein, we realized fully that the production of well-adapted varieties was the task of the plant breeder. We devised some practical tests of the plant breeder's progress. We built refrigerated chambers, in which growing plants could be subjected to freezing tests of various intensities and duration, to see which varieties stood up best. We built a "chinook" machine, so-called from the hot, drying winds of that name which sweep across the prairies from the south-west. In this machine we exposed plants at will to similar winds of controlled speed and temperature, again to see which varieties fared best. In cooperation with the University of Saskatchewan, the laboratory of the Board of Grain Commissioners in Winnipeg, and the Cereal Division of the Department of Agriculture at Ottawa, we brought to a high degree of refinement the small-scale milling and baking tests needed to test new varieties of wheat available only in small quantity. By these tests, over a period of years it was possible to classify varieties new and old with respect to their

commercial suitability.

The nature of disease resistance was the most baffling problem. We asked ourselves, what is it in the plant-cell ~~that~~ contents that allows infection to succeed in some cases and inhibits it in others? We sought information in two ways: first, by analytical studies; second, by injecting into the leaves of susceptible varieties the filtered juice of resistant varieties or chemical substances we suspected might be responsible for the resistance. Then we inoculated the leaves with rust spores to see what happened. Again the results, though suggestive, were not conclusive, and we fell back on the plant breeders and plant pathologists for practical solutions. But the biochemists were still needed to test cereal grains of new, more resistant varieties for their industrial qualities.

We carried the study of environmental effects on wheat yield and quality farther than had been done hitherto, in regard to both climate and soil, including the effects of crop sequence. Nitrogen is the key element in the formation of wheat gluten, the substance that provides the framework of a loaf of bread. We determined the total use of nitrogen by the various hay crops that usually precede wheat in a crop rotation, and the proportion left in the stubble and roots for the use of the succeeding wheat crop. These crop residues must be decomposed by soil micro-organisms to make their nitrogen content available to the wheat plants. We therefore studied rates of nitrification both in field and laboratory, as influenced by the various crop residues. We were able to relate all our results satisfactorily to the yield and quality of wheat harvested from our experimental plots.

It had sometimes been suggested that the longer summer days in northern latitudes might compensate in part for a shorter frost-free season, by hastening the growth of annual plants such as wheat, so making possible a northward extension of wheat production. With data supplied by fourteen stations in the Great Plains, ranging from latitude 39°N. to 56.5°N., covering a period of 17 years, we compared the growth periods of four varieties of wheat, and were unable to substantiate this theory. To discover why, I had to wait till we moved to Ottawa and could build plant growth chambers with provision for controlling light and temperature. With these chambers we determined that when the temperature drops to 45°F., as it must often do during the morning and evening daylight hours in northern latitudes, the wheat plant is no longer capable of making effective use of the light. More light at that temperature does not hasten growth. Here again our laboratory investigations enabled us to explain what happened in the field.

The expansion of research in the department made us very crowded for laboratory and greenhouse space. We equipped the one greenhouse section we possessed with strong lights to speed up the multiplication of new hybrids by growing an extra generation in winter; and with thermostats and fans to regulate the temperature for physiological and pathological experiments. But in the laboratory some of the equipment had to be erected in two tiers to get it in at all. We made plans for an extension to the laboratory, with adequate greenhouses annexed, and got a rough estimate of \$65,000 as the cost. But the farmers' government then in office had financial troubles of its own, and building funds for the university were hard to come by. With Dr. Tory's backing I sought

and obtained permission to address the agricultural committee of the Legislature, a committee of the whole house. I prepared a careful selection of lantern slides, calculated to impress the legislators with the importance of our work in helping to solve the practical problems of Alberta farmers. I included a striking exterior/^{photo}of the brightly lighted greenhouse on a dark night, and explained the plant breeding and disease control work it was designed to speed up. The upshot was a unanimous recommendation by the committee to add a special item of \$65,000 to the estimates for 1927-28.

My enthusiasm was dampened a few days later, when Dr. Tory called me in to say he found the feeling so strong among other departments which also needed more space and equipment, that he would have to take away from us half of this special vote. This meant that instead of the brick structure we had projected, harmonizing in design and appearance with the existing laboratory, we had to settle for a frame and stucco building unrelated to anything on the campus.

The next contretemps came one morning early in the spring, when two teams of horses, one with a plow and the other with a scoop-shovel ~~✱~~ that was before the days of bulldozers — appeared on the building site to begin levelling and excavating. The librarian, D.E. Cameron, happened along, and immediately rushed in great excitement to Dr. Tory's office to protest that we were using part of the site intended for the library. Actually no such purpose for this site was shown on the master plan hanging in the president's office, and the Rutherford library, when it came, was built elsewhere. But because of its central location, Cameron

had suggested the site that we appeared about to preempt.* Dr.

* In 1963-64, the university built the Donald Ewing Cameron Library, to serve particularly the needs of advanced students and researchers, on the very site Cameron defended successfully in 1927.

Tory came out at once, and asked me to look around with him for another place for our laboratory extension. We walked about at the energetic pace he normally used, his arms swinging vigorously, and eventually reached a small knoll just south of Pembina Hall, a women's residence. "Put it here," said Dr. Tory. I mentioned the inconvenience of having it 200 yards away from our main laboratory, also the questionable propriety of placing a relatively uncouth building on the highest and most conspicuous point on the campus, but as I could not on the spur of the moment suggest a more suitable site, the teams, plow, and scoop-shovel were called over, and there it went.

Fortunately the equipment of the building, and the greenhouses, were just as we had originally planned, and gave a great filip to our work, not only in plant biochemistry, my own special interest, but also in plant breeding and plant pathology. These divisions were led by well-trained, competent men, and made good progress. We maintained close liaison between all divisions by weekly meetings, beginning with tea, followed by a report on his work by a member of the staff or a graduate student. These were subjected to keen criticism and discussion. Once each summer we had a field day, in which all members of the staff, including graduate assistants, inspected every experiment involving the use of field plots. Altogether it was a very happy and productive period, though towards the end I became so involved in organizing,

equipping, and staffing the biology division of the National Research Laboratories, and also in special missions for the Council, that I had less and less opportunity for that most satisfying of all occupations, working in the laboratory with my own hands.

Dr. Olaf S. Aamodt joined the department in 1928, with the idea in my mind that he ^{could well} ~~might~~ succeed me as head when I moved to the National Research Council, as in fact he did. He was a product of Minnesota, thoroughly trained from the ground up with Hayes and Stakman; not only was he highly skilled in plant breeding but he was also very knowledgeable in plant pathology. He took a load of responsibility from my shoulders. Not only was he the moving spirit in particular projects, as in developing the "chinook" machine tests of drought hardiness mentioned earlier, but he was a staunch and understanding supporter of the multiscience integration I sought to establish in the department.

The following summer, as I was returning from the smelter smoke survey at Northport, Aamodt met me with a car at Lethbridge and we toured southern Alberta, first heading west to Pincher Creek and Waterton Lakes, then doubling east through Manyberries and the Cypress Hills to Medicine Hat. This gave us a good view of both ranching and irrigated areas. Starting homeward northwest from Medicine Hat, a notoriously hot spot in summer, the temperature that day was 104°F. in the shade. Putting one's hand out of the car window into the sunshine gave one a feeling akin to sticking it into a hot oven. Soon we overtook an American touring car well-loaded with camping equipment, on top of the lot a pair of snowshoes. They were prepared for all eventualities in this

wilderness land of Indians, bears, snow and ice! I remembered some of the surprising questions I had been asked at the University of Minnesota. For example, a junior member of the staff asked me if we had newspapers and street cars in Canada. But our well-equipped American tourists, if they continued on the course they and we were following that morning, would indeed encounter wilderness enough, the "bad lands" in the dry section of the Red Deer river valley. This very striking landscape, deeply cut and scarred, impossible for agriculture, was once the home of dinosaurs, and their skeletons found here now enrich the collections of many natural history museums.

Wider Contacts

On my way home from Minnesota in June, 1921, I attended the first annual convention of the Canadian Society of Technical Agriculturists (usually called the C.S.T.A.), of which I had become a charter member a year earlier. In time this developed into a full-fledged professional society with the new name of the Agricultural Institute of Canada (the A.I.C.). For the first ten years I had a perfect attendance record at its conventions, thus making Canada-wide acquaintance with men of similar interests. During this period, and for some years afterwards, the C.S.T.A. conventions were held just before or after the annual meetings of the Canadian Seed Growers Association (the C.S.G.A.), and in the same places. This helped many of us to attend both meetings, particularly as the Dominion Seed Commissioner, George H. Clark, arranged for payment of the travelling expenses of university men who were qualified to help with the technical aspects of seed production.

Provincial seed boards were a logical outgrowth of the foregoing activities. Our Alberta Seed Board consisted of H.G.L. Strange, already mentioned as a progressive farmer at Fenn, who was for some years president of the C.S.G.A.; Don Bark, also mentioned earlier as superintendent of the C.P.R. irrigation district at Brooks; Gordon Stewart, the district seed inspector; William Stephens, provincial commissioner of field crops; and myself. Stephens had earned the nickname of "Wild Bill" by driving right over a competitor's upset sulky in a trotting race in earlier years. The others were equally strong characters, and we had many a lively argument over such questions as what crop varieties to recommend for different soil and climatic zones, how to establish and support district seed-cleaning plants, and how to guide seed fairs to use a more discriminating prize list.

In June, 1926, the committee on graduate studies of the C.S.T.A. recommended a survey of opportunities for graduate study in agriculture in Canada, and a report on these which might serve as a guide to prospective graduate students. By the following year the energetic secretary-treasurer, Fred H. Grindley, had secured the financial backing of the International Education Board, and I was elected to do the job. This brought me into close contact with the major educational institutions and their instructional staffs. From the introduction to my report, published by the Society in 1929, I quote the following:

"...The founders of our first Canadian colleges (of agriculture) had in mind vocational schools rather than universities, and established these institutions on farms widely removed from the universities. Primary emphasis was

laid upon facilities for instruction in the practical art of farming, at whatever sacrifice of opportunity for scientific training and the broader culture of the university. Physical separation and different objectives had the unfortunate result of creating double standards in regard to entrance requirements, course requirements for the degree and, worst of all, in the salaries and academic standing of the staff. ..."

It is gratifying to feel that this report played a part in stimulating the rapid correction of these discrepancies. Even the disadvantages of physical separation of campuses have been largely overcome — in one case completely, when the University of Manitoba moved to its agricultural campus.

In a concluding section of the report, headed "Outlook", I said:

"It will always be desirable that large numbers of students should go abroad (for the doctorate), and bring back the leaven of new ideas and wider vision, but we may justly aspire to make this movement of students one of exchange and not merely of export."

This aspiration, too, has been completely realized. Many foreign students now come to Canada not only for undergraduate courses but also for both doctorate and post-doctorate study.

Of course we still need agricultural schools of a vocational nature, but even these must constantly revise their curricula to keep up with changing conditions. Farming, which we once regarded as a way of life rather than an industry or profession, is evolving as rapidly as any other productive enterprise in our economy. The family farm is gradually disappearing under the impact of automation. More and more land is passing into the hands of well-financed and

efficient corporations. Processing plants, preparing products for direct sale to retail outlets, are becoming an adjunct of large farms or cooperative groups of farms. Vocational education for agriculture then becomes a matter of training the wide variety of technicians required by such a diversified industry.

The responsibility of the universities is to train the scientists needed to cope with the many problems that are bound to arise, and the technologists to put science to work effectively, as well as to provide managerial and supervisory staff. They must also constantly replenish their own instructional and research staffs, and the staffs of the growing number of corporation and government laboratories and experimental stations. Further, they must supply the need for agricultural economists, extension workers, and agricultural journalists. Finally, it is the unique function of the universities to protect the essential values of education, to see that their graduates are cultivated human beings and not merely efficient robots.

A pleasant by-product of the C.S.T.A. survey, and of the annual conventions, was the renewal of many personal acquaintances and the formation of new ones. Dr. L.S. Klinck, my mentor in undergraduate days, who had become president of the University of British Columbia, was the first president of the C.S.T.A. A charming and helpful member of the Quebec group was Dr. Georges Bouchard, instructor in the School of Agriculture at Ste Anne de la Pocatière, who served a term as Member of Parliament but was not too enamoured of that experience. He said to me: "Ceux qui nous dirigent sont ceux qui dépensent, et non pas ceux qui pensent," which I translated freely, though perhaps a bit sharply, "Those

who govern us are those who squander, not those who ponder."

Other French-Canadian friends who welcomed me particularly when our meetings were in Quebec included Dr. Georges Maheux, head of the plant protection service, and Narcisse Savoie, secretary of the Department of Agriculture, who had been my class-mate at Macdonald College.

The Canadian Seed Growers Association, too, enriched my circle of acquaintance. I was appointed chairman of a committee to simplify and codify regulations for the production of the three grades of seed recognized by the Association: foundation stock, elite, and registered seed. This involved a study of the annual reports from the beginning, to discover and tabulate all actions relating to such regulations. I did this part of the work myself, but when it came to consolidating these into an acceptable code I had effective cooperation from Peter Stewart, the secretary; L.H. Newman, the original secretary and then Dominion Cerealists; Robert Summerby, professor of agronomy at Macdonald College; and W.T. Macoun, Dominion Horticulturist. Summerby's serious thoroughness kept us from overlooking any loophole in the regulations, while Macoun's poetry and humour saved us from taking ourselves too seriously.

Incidentally, the necessary field inspection of registered seed crops took members of my department in the University of Alberta to many parts of the province in August of each year. In early years I did a good deal of this work myself, especially the inspection of farms within a day's drive of Edmonton, as I enjoyed meeting the farmers and we often made these trips the occasion for family picnics. We never tired of the beautiful

rolling parkland, replete with lakes and streams, and the luxuriant golden fields supported by the astonishingly fertile soil.

In 1923, the University of Alberta installed the War Memorial organ in Convocation Hall. This ambitious project was financed entirely by voluntary contributions of staff, students, alumni, and members of governing bodies. Ernest W. Sheldon, professor of mathematics, and I were given the task of canvassing the teaching staff, and met a heart-warming response. The organ was destined to play an important role in the life of the university, not only as the central feature of Remembrance Day services, but on nearly all official occasions and many others. Besides an annual series of recitals, the university organist gave short informal recitals late each afternoon during the final examination period, a welcome relief from stress, appreciated by the students. A member of the physics department, Professor L.H. Nichols, was the university organist, a post he held with distinction for some 35 years. He had cooperated with Casavant Frères, of Ste Hyacinthe, Quebec, in drawing up the original specifications, and did the same when the organ was greatly enlarged to make it a worthy memorial of both Great Wars. This time the Governors of the University provided the necessary funds. A personal touch at the re-dedication service for the enlarged organ was the inclusion in the organist's program of one of my wife's compositions, a prelude based on Martin Luther's Ein' feste Burg. The organ had unusual external beauty, due to the design of Cecil S. Burgess, professor of architecture.

Happily all feelings of bitterness against Germans as people disappeared rapidly, and not long after the installation of the

organ we began to welcome occasional German students into our classes. European students generally put us to shame with their superior knowledge of foreign languages, but they may make natural slips from time to time. One of my own German students amused us by this original translation of Scripture: "The ghost is willing but the meat is weak."

In February, 1924, my turn came to act as exchange lecturer at the universities of Manitoba and Saskatchewan. In each place I gave two lectures, one to the university as a whole, the other to a more intimate faculty group. These visits were part of a scheme, later extended to the University of British Columbia, to promote cooperation and fellowship among the western universities. It did so for me personally: I met some individuals with whom I maintained lifelong contacts, including a few who later became my colleagues on the National Research Council.

In the summer of 1924 the British Association for the Advancement of Science held a meeting in Canada, travelling across country by special trains, with stops at various places, including Edmonton. We were delighted by the extraordinary gift for popularizing science shown by members who addressed us, especially Arthur S. Eddington and William L. Bragg, both knighted later for their achievements. The controversy between those supporting the corpuscular theory of light and those favouring the wave theory had just been very satisfactorily resolved by the conclusion that both were right. Eddington suggested that we might use the corpuscular theory on Mondays, Wednesdays, and Fridays, and the wave theory on Tuesdays, Thursdays, and Saturdays. In this lecture, too, he referred to the scientists' growing recognition

of the insubstantiality of matter, and described the universe as "a great thought", an expression later enshrined in his book, "The Nature of the Physical World". Bragg, known for his classical researches on crystal structure as shown by X-ray analysis, described with the help of models ~~the~~ the structure of some carbon compounds, explaining thereby what makes grease greasy.

William H. Beveridge, the economist, later knighted for his plan for social security from cradle to grave, had the outline of this already in his mind, and shared some of his ideas with us. One of his remarks that stayed with me was, "We cannot live simply by taking in one another's washing."

Another popular speaker was Sir E. John Russell, director of Rothamsted Experimental Station, who was accompanied by Lady Russell. My wife and I had the pleasant assignment of acting as ~~hosts~~ their hosts for the occasion. Rothamsted is a name held in reverence by agricultural scientists the world over, and something of its aura naturally attached to the Russells. It was the first of several contacts with them we were destined to enjoy.

Indeed, the following year the Russells returned with the International Soils Congress, which also pursued a peripatetic course across Canada. By this time we had a good display of field experiments, laid out in modern statistical arrangements which Sir John Russell commended. We had corresponding laboratory studies, which were even more appreciated by some of the visitors, including D.R. Hoagland, professor of plant nutrition in the University of California. He arranged for me to give a short series of lectures, in March, 1926, to the graduate school of his university. That gave me a welcome trip to a part of the United States I had not

previously seen. The University of California was not then the giant octopus it later became, but already its tentacles reached Davis, in the Sacramento valley, where I repeated my lectures, and the citrus fruit experiment station at Riverside in the south, where I had consultations.

During the years 1922-24 I enjoyed a much-prized diversion, when I was a scout master with the Fourth Edmonton Troop, which had its hut on the university campus. Dr. J.J. Ower, professor of pathology, was the founder of the troop, and a better scout than he never followed the trail. He met plenty of adversity during his life, but was the living embodiment of the 8th scout law, "A scout smiles and whistles under all difficulties." A veritable Peter Pan, he retained his childlike zest for life and play to the very end, and was not a whit changed during the years he held the responsible post of dean of the Faculty of Medicine. One of his lighthearted pranks broke the solemnity of a university Convocation. When Dean Rankin retired he was given the honorary degree of Doctor of Laws. In presenting him for the degree, his successor, Dean Ower, ostentatiously unfurled a long scroll, and began addressing the Chancellor in Latin, probably for the first and only time in the history of this modern university. Dr Ower's last letter to me, characteristically dated "The Day of St. Valentine plus Three, 1962," addressed to "Dear Chebec" (my scout name), when he was housebound after a surgical bout in the hospital, had never a word of complaint but was an enthusiastic account of scouting progress in Edmonton. His signature was prosaically typed "Barn Owl", since he had been blind for some years and was unable to continue his practice of signing his letters to me with a drawing

of that bird. He died two weeks later. A guard of honour of Queen Scouts attended his body to the grave.

Our troop's association with the university had practical advantages. Staff members willingly helped us with special talks and demonstrations. Dr. J.W. Campbell, professor of mathematics, whose special interest was astronomy, graphically illustrated the relative distances and magnitudes of the heavenly bodies, and gave us a glimpse of the moon through his 4-inch refracting telescope. Later an excellent 13-inch reflecting telescope was presented to the university by Mr. Cyril Wates, a local enthusiast, who had made it with his own hands. Dr. William Rowan, professor of zoology and an authority on bird migration, described local visitors and demonstrated how to skin a bird and prepare a stuffed specimen. Rowan was also an artist, and drew for us a kangaroo, our troop badge, from which we had a plate made to head the newspaper account of our doings which I wrote weekly. To get their scout names in the paper for some special achievement was a great stimulus to the boys.

In the summer of 1923 we took the troop on a camping trip to the north end of Pigeon Lake, near Edmonton, that end of the lake being still unspoiled by any colony of summer cottages. But the following summer, after the troop had won the district shield, came the real camping adventure. A circus elephant named "Myrtle" had escaped from the show at Cranbrook, B.C., and perished in the woods. An Indian guide had trailed the elephant and located the carcass several miles away through the trackless forest. It was therefore a challenge to a genuine scouting job. Dr. Ower and I took our cars, and a good scout named Archie West, the university

bursar, took his, which was large enough to haul a trailer full of camping equipment and supplies. Between the three of us we were able to transport the troop. Seven days of rain on the way to Cranbrook, sightseeing en route, were a sore trial, but we finally made it. Happily Cranbrook was dry. There we were lucky enough to find a Mr. Ironsides, who had actually viewed the remains. Early next morning he guided us to the spot nearest the relics that could be reached by car. Then we headed into the woods. It was 6 p.m. and 6 miles from the road when a tired troop was suddenly electrified by discovering the goal. The grizzlies had left nothing but bleaching bones and some pieces of hide. These were quickly appropriated as trophies and the return to camp made in haste, ere darkness should make finding our way next to impossible. The weather, too, smiled on us from that day forward.

When a growing work-load and frequent absences forced me to give up scouting, we found relaxation at a small cottage we bought at Kapasiwin, on Lake Wabamun, west of Edmonton. We were the first university folk to "discover" that attractive spot, but others soon followed, and before long it became a campus summer colony.

European Holiday

As we had no children, and were living in an apartment in one of the university residences, where we could get our noon meals conveniently in the university dining-room, my wife decided in 1926 to embark on a five-year honours course in French and German. In this she did very well, considering that she maintained throughout a heavy load of church work in addition to household duties. When she graduated with honours and the Shakespeare prize in 1931, we thought it opportune to take an overseas holiday — the only long

holiday we ever indulged in -- particularly as we were fairly sure of moving to Ottawa the following year. We spent some three months together, and my wife stayed in Europe till the following summer, further to improve her languages by study in the Sorbonne and in Bonn University.

Neither of us had any taste for idling, or even for prolonged sight-seeing. We found the formula for an ideal holiday by enrolling in the institute for foreigners, first at Grenoble University and then at Berlin University. The excellent courses provided good hard work, five days a week, at something very interesting and totally different from our ordinary occupations. The weekends were free for visiting museums or joining in excursions with students of many nationalities.

While attending the Sorbonne, my wife lived in a pension near the Bois de Boulogne, which had been Nell Gwynn's house, and occupied that lady's very bedroom, its walls covered with mirrors and rococo gilding. Crossing the Channel to England, on the first stage of her journey home, she recognized Albert Einstein on the boat, and screwed up her courage to speak to him. Once he had satisfied himself that she was a student and not a journalist, he talked freely to her in German. He said, among other things, that England was the greatest country in the world, and that he was on the way to Cambridge to take a course in mathematics! Hitler's star was rising then, and the question of war and peace was much on peoples' minds. On this subject Einstein said prophetically, "We shall not see world peace in our time, but our grandchildren will."

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Opportunities for new employment have seemed, in my experience, to come in bunches. In 1929, only a year after I had been appointed half-time director of the Division of Biology in the National Research Laboratories, I was invited to become president of the State College of North Dakota. This did not attract me, as that institution was then caught in a maelstrom of state politics. The incident is of interest only as my first invitation to head an institution of higher learning.

Much more attractive was a similar approach from Dalhousie University early in 1962, the year I expected to move to Ottawa on a full-time basis. Dr. H.M. Tory observed strict neutrality, but his brother, Hon. James Tory, who at different times was Chairman of the Dalhousie board of governors and Lieutenant Governor of Nova Scotia, personally urged me to let my name stand for appointment. In my dilemma I consulted Dr. Walter Murray, a graduate of Dalhousie, first president of the University of Saskatchewan, and one of the first members of the National Research Council. He, too, found a conflict of loyalties, but finally said, "You know the situation in Ottawa. If you don't stand by Tory now he will have great difficulty in establishing the Division of Biology." There was a good deal of jealousy of the National Research Council, based on suspicion that it would try to pick off all the attractive research projects, leaving government departments only routine work to perform. This feeling was particularly strong in the Department of Agriculture with regard to the Division of Biology. I took Dr. Murray's advice and declined the Dalhousie opening.

The last of this group of counter-attractions came in the fall of 1932, only a few months after we had moved to Ottawa. Dr. G.S.H. Barton, dean of the faculty of agriculture and head of Macdonald College, also moved to Ottawa to fill the post of deputy minister of agriculture for which Prime Minister Bennett had originally earmarked me. Sir Arthur Currie, principal and vice-chancellor of McGill University, not only invited me but urged me on grounds of loyalty to my alma mater, to fill the vacancy at Macdonald College. To make it more attractive, he offered to revive the title of "principal" which had lapsed with Dr. Harrison, also to place at my disposal the spacious and beautiful residence originally built for Dr. Harrison. This time Dr. Tory was anything but neutral. He pointed out that if I had had any notion of moving then to an educational institution, I should have taken the Dalhousie post. There was indeed a rare attractiveness in the prospect of sitting in the seat of James W. Robertson, but I knew I should not let sentiment cloud my judgment, and declined.

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Chapter VIII

NATIONAL RESEARCH COUNCIL

The National Research Council was born of wartime necessity. The First Great War differed from earlier wars not only in the number of countries involved but also in its demand for the practically complete mobilization of all resources in support of the war effort. In Canada the dearth of well-trained scientists, and of scientific research on the utilization of these resources, became all too painfully evident. On June 1, 1916, an Order in Council established a Sub-Committee of the Privy Council for Scientific and Industrial Research. This group of ministers, under the chairmanship of Sir George E. Foster, appointed the first Research Council on November 29, 1916, with Dr. A.B. Macallum, professor of biochemistry in the University of Toronto, as administrative chairman. All members served voluntarily.

How well these first members planned may be seen in their first annual report, 1917-18, which shows three out of the four main lines of subsequent activity to be already established, and the fourth strongly recommended. These were: (1) scholarships for the training of young scientists, (2) grants to assist research by qualified members of university staffs, (3) committees to plan and coordinate joint research on large projects involving a number of institutions, (4) a national research institute to investigate problems of national importance for which adequate facilities did not exist elsewhere. A bill to establish this institute passed the House of Commons almost unanimously on May 10, 1921, but was rejected in the Senate. This act of singular obtuseness brought at least some good in its train, for the

postponement of the project led to the construction of laboratories more spacious and adequate than could have been contemplated in 1921. It was not till 1928, when Dr. Tory's driving force had begun to take effect, that Parliament made financial provision for the construction of national research laboratories.

Tory had become a member of the Council in 1922, and a year later succeeded his lifelong friend, Frank D. Adams, professor of geology in McGill University, as administrative chairman. He took prompt steps to bring the Research Council Act up to date. In July, 1924, the revised Act was passed, making the Council a corporate body, of which Tory became the first president, and broadening its powers to include carrying out researches in its own laboratories. The first of these researches, on magnesite, was launched in borrowed space the following year. When the construction of the Council's own laboratories was authorized in 1928, Tory resigned the presidency of the University of Alberta in order to give his full time to the new work.

I have already mentioned (page 197) the advisory relationship Tory accorded to me from 1924 onwards, and the half-time service I gave the Council for the four years 1928-32. Part of this consisted in planning the sections of the new laboratories earmarked for biological researches, and cooperating with other directors in specifying equipment to be used in common by all divisions. W.H. Cook, who had shown special aptitude in designing scientific equipment, accompanied me in the spring of 1931 on visits to a number of American institutions, including university laboratories, the Bureau of Standards and other government laboratories in Washington, and manufacturers of scientific

equipment in Philadelphia. Then I left him in Ottawa to design and watch over the construction and installation of equipment for our division of biology, a responsibility he discharged faithfully and well.

Here I shall leave the laboratories for the moment, while I describe some Council activities in which I shared during the period 1924-32.

Wheat Rust Saga

Rust diseases, especially wheat stem rust, had been a source of substantial loss to grain growers in the prairie provinces almost from the beginning of settlement in that region. In some years these losses attained the proportions of a major disaster. That they have long since been reduced to a tolerable minimum is due to a well-organized scientific attack which could be taken as a model for campaigns in the field of agricultural science. It has been fully described by one of the active combatants, Dr. Thorvaldur Johnson, in "Rust Research in Canada, and Related Plant Disease Investigations" (Can. Dept. of Agr. Pub. 1098, April, 1961). Here I need only outline the share of the National Research Council which, in terms of actual work done, was minor, but in terms of organization and drive, was of major importance.

Following a disastrous rust epidemic in 1916, Dr. Walter C. Murray, president of the University of Saskatchewan and convener of a special committee of the National Research Council on plant and animal diseases, initiated discussions with Dr. J.H. Grisdale, director of the Dominion Experimental Farms, who called a conference in Winnipeg in August, 1917. The scientifically trained men present at the conference indicated accurately the methods that would lead

to success. Dr. A.H.R. Buller, professor of botany in the University of Manitoba, emphasized the role of the common barberry bush in spreading infection, a role his ~~student and followers~~, Dr. J.H. Craigie, was to elucidate completely. Professor W.P. Fraser, who had just been appointed by the Dominion Experimental Farms as officer-in-charge of rust investigations, urged the coordination of field observations with greenhouse and laboratory investigations, a method which eventually enabled his student, Dr. Margaret Newton, together with her colleague, Dr. Thorvaldur Johnson, to unravel that other aspect of the rust organism's complexities, the existence of numerous strains of rust, some attacking certain wheat varieties and not others. Finally, Dr. W.P. Thompson, professor of biology in the University of Saskatchewan, proposed the breeding of rust-resistant varieties, he having observed that ~~that~~ emmer and durum wheats showed resistance to rust and he having already begun attempts to cross these with bread wheats. The National Research Council made a grant to Dr. Thompson the next year to help him in this work.

But it was ~~not~~ to take still another epidemic and more vigorous speech-making, notably by Dr. Tory on December 13, 1923, at an Ottawa meeting of the Canadian Club attended by the Prime Minister and several members of his cabinet, before these competent scientists were given adequate backing in their unequal struggle. Early in January, 1924, Dr. Tory met with the research committee of the Privy Council, and obtained the support of this group of ministers for his effort to get something substantial under way. On January 18 the National Research Council decided on the appointment of the Associate Committee on Cereal Rusts, allocating \$5000 to assist

in getting its work started, and later selected H.M. Tory, W.P. Thompson, A.H.R. Buller, and myself as its own representatives on the committee.

Dr. H.T. Güssow, Dominion Botanist, was in charge of all plant disease work in the Dominion Department of Agriculture. Unfortunately, his German origin had been a sadly unfair handicap to him. During the First Great War public pressure had forced his suspension from office, and even afterwards his sound recommendations were for some years relatively unheeded. But on June 18, 1924, he was at last able to present successfully to the agricultural committee of the House of Commons the case for a rust laboratory. It should be noted in passing that Dr. Güssow's colleagues had always appreciated his scientific ability, even if his national inclination towards dominance sometimes rubbed them a little the wrong way in his official dealings. But he had a kindly heart, and at home was a model of Gemütlichkeit (geniality plus). He was a good neighbour during my 1913 sojourn in Ottawa, and helped me with photography, a field in which he was expert. We maintained friendly contact until his passing in 1961. At our committee meetings, Dr. Tory and I rarely failed to have one dinner together with him, and enjoyed his cultivated mind. By the time World War II came he had won a secure place, and suffered no more than occasional embarrassment by tactless people.

The first meeting of the Rust Committee took the form of an international conference in Winnipeg on September 9-10, 1924. Rust spores over-winter in the southern states and blow northward in stages to infect new spring wheat crops as these develop. The universities of Minnesota, North Dakota, and Wisconsin had already

made considerable progress with rust investigations, and representatives of these institutions joined us in Winnipeg to share their knowledge and help plan a program. The next meeting of the Canadian committee alone took place on January 26, 1925, to consider proposals submitted by each cooperating institution. At this meeting the committee inspected and recommended a site for the Dominion Rust Research Laboratory on the campus of the Manitoba Agricultural College at Winnipeg. The Dominion Department of Agriculture initiated construction that year, and proceeded to build up a competent staff of plant pathologists and plant breeders, the former group led by D.L. Bailey and J.H. Craigie, the latter by C.H. Goulden. The universities of the prairie provinces cooperated actively.

Meanwhile other diseases, notably foot and root rots and smuts of cereals, were becoming more menacing, and the Associate Committee on Field Crop Diseases (with which the rust committee ~~separated~~ soon merged) was set up in 1928.

Dr. Tory and Dr. J.H. Grisdale, then Deputy Minister of Agriculture, became joint chairmen of these committees, though a few years later they turned over this office to Dr. J.M. Swaine, director of Science Service in the Dominion Department of Agriculture, and myself. Dr. Walter C. Murray, who as a member of the National Research Council had been first to initiate joint discussions in 1917, continued his interest in the project and attended meetings for several years. He and Dr. Tory were fellow Nova Scotians, who had answered the call of the west at about the same time. Dr. Murray contributed the necessary touch of political caution to our deliberations, as well as a liberal supply of gay humour.

Well do I remember the occasion in the Fort Garry Hotel when one of us had been rhyming off a long list of wheat varieties under test, very much as a train announcer rhymes off a list of stations. When he finally got to the end, Dr. Murray chimed in, "and all points west." This light touch, towards the end of a long day of reports and discussions, brightened us up no end.

The unique role of Dr. Tory personally in all this was to act as a catalyst. Filled with boundless energy and initiative, he was always on the lookout for some scientific cause to champion. What if he did sometimes appear to claim too much credit for the National Research Council: in one of his enthusiastic nature that was both natural and forgivable. Many enterprises were undoubtedly started sooner because of his vigorous espousal. It became proverbial that the way to stir up the Minister of Agriculture to start something was for Dr. Tory to announce his own intention of doing so. Then of course the funds at his disposal in the budget of the National Research Council were a powerful tool, both to finance meetings of scientists and to assist the researches recommended by such meetings. At these meetings Grisdale was Tory's sparring partner, being just as zealous for the good name of the Department of Agriculture as Tory was for the National Research Council. Any sign of Tory's invading Grisdale's territory provoked an immediate reaction. But differences were settled good-humouredly, all present recognizing the soundness of concerted action by all organizations in a position~~x~~ to contribute.

It was the spring of 1937 before we saw the first practical fruits of this carefully organized and laborious program of research. That year a limited distribution was made to farmers,

of two new rust-resistant varieties of wheat, "Apex", a Saskatoon production, and "Renown", from the Dominion group working at Winnipeg. I called the attention of Dr. L.H. Newman, Dominion Cerealists, to this verse from the prophet Ezekiel (34:29): "And I will raise up for them a plant of renown, and they shall be no more consumed with hunger in the land."

Grain Research Committee

Now I must go back some years to trace the origin of another committee which played a vital role not only in the fight against plant diseases but also in safeguarding Canada's reputation for high quality grain crops.

The Canada Grain Act, passed in 1925, required that the Board of Grain Commissioners "shall maintain an efficient and adequately equipped laboratory for grain research work and for the purpose of assisting the chief inspector and the grain standards board in determining the grades and the milling value of grain." An earlier laboratory directly responsible to the Minister of Trade and Commerce was thus to be superseded or transferred, and the Dominion Government asked the National Research Council for advice on the scope and organization of the new one. Dr. Tory called a conference at the University of Alberta on January 15, 1926, which not only outlined a program for the Grain Board laboratory but also a grain research program for the three universities of the prairie provinces, and went on to recommend the appointment of a committee to coordinate the work. This was the origin of the Associate Committee on Grain Research. Dr. Tory became chairman, but again soon turned this office over to me. The cereal chemists who made up the core of its membership, with the companies of plant

pathologists and plant breeders already mobilized, completed a little army of scientists that went on from victory to victory.

The Grain Research Committee itself developed the most closely knit and effective program of research I have known. It fulfilled from the outset a vital function in the fight against plant diseases, by refining quality tests of new, disease-resistant varieties, and especially by securing a wide measure of agreement on, and confidence in, the milling and baking tests of new wheats. For several years it repeated these tests in the laboratories of the universities of Alberta and Saskatchewan, the Grain Board in Winnipeg, and the Cereal Division at Ottawa. It went on to fundamental studies on the nature of the industrial qualities desired in Canadian grain crops. As time went on, the Grain Board laboratory began to assume a more and more dominant position in the organization, by reason of its growing size, competent direction, and its unequalled opportunity for collecting ~~the~~ experimental samples of all kinds of grain crops. It has become undoubtedly one of the leading world laboratories in its field.

The group of scientists that outlined the original grain research program on January 15, 1926, reinforced by a few others, proceeded the following day to draft a wider program of biological research on problems underlying crop production in the prairie provinces. This second-day meeting was called by Dr. Tory at the request of the Canadian Universities Conference, which was concerned with the question of offering in large eastern universities a program of graduate studies to meet the needs of students from the west. It is scarcely surprising that the western group attending the conference showed no disposition to remain forever

dependent on eastern universities for graduate study facilities, and addressed themselves immediately to the task of outlining a program of fundamental research in the West as a first step towards providing such facilities of their own. This program, like that of the Grain Research Committee, stood the test of time and experience. Much of it has been carried out, forming a broad base for the flourishing schools of graduate study that have grown up.

The Grain Research Committee was not established a moment too soon. That year, 1926, was the second, and worst, in a series of three wet harvest seasons. Large quantities of damp ~~wheat~~ wheat were being hastily dried by methods that had not been adequately checked with respect to their effects on milling and baking quality. Farmers complained that the discounts on tough wheat (over 14.4 % moisture) and damp wheat (over 17.0 %) were excessive, and Old Country millers complained that the wheat had been damaged in drying. Dr. Murray wired Dr. Tory of the serious situation in Saskatchewan, and urged prompt action. The Canadian Wheat Pool also appealed to the National Research Council to investigate the whole question of grain drying. The Grain Research Committee met promptly in Winnipeg and laid out its first big joint project, which was so successful it set a pattern for all our further work. It began with a quick survey by a competent engineer, to ascertain the nature and scope of the problem, and continued with a systematic investigation, under carefully controlled conditions, of all the factors so disclosed. An experimental drier was designed and constructed in the industrial research laboratory of the University of Alberta. The final report, published in

1929, received universal acceptance.

A comparable study of another form of damage, frost, followed hard upon the foregoing. In the fall of 1928 an unusually large proportion, in fact over half, of the wheat crop was damaged by frost. The grades were low, the yields reduced in some cases, and the financial loss to the farmers heavy. We began that year an annual survey of the quality of commercial samples in relation to the grades given them as a result of frost injury. We also ~~we~~ installed a freezing plant at the University of Alberta, where for three seasons we subjected about 45 sheaves of each of four varieties of wheat to graded frost exposures at progressive stages of maturity. The threshed grain provided the material for studies of physical characteristics, chemical composition, milling and baking quality, and seed value.

Damp and frosted wheat are still with us, but these elaborate studies provided a lasting basis of information for their economical handling and fair grading, as well as reassuring foreign importers that Canadian wheat grades mean what they say.

Wheat Protein as Grading Factor

Wheat is unique in the possession of the gluten proteins, which cause wheat flour, on admixture of water, to form an elastic dough. A lump of bread dough, by the installation of a suitable gas generator such as yeast, can be blown up into a sort of pneumatic honeycomb which, on the application of heat, sets into the object we call a loaf of bread. Canada is world-famous for the strong bread-making qualities of her wheat.

This reputation was built originally on wheat produced in the southern, brown-soil plains of the prairie provinces. As

settlement pushed northward into the park belt with its greater rainfall and fertile black soil, it was found that yields were larger but bread-making qualities poorer in the sense that the wheat had less reserve strength to bolster up the weaker European wheats with which it was commonly blended. Plant breeders worked hard, and with considerable success, to produce early ripening varieties which were naturally high in protein content and of good milling quality. But as production pushed still further north into the gray, wooded ~~and~~ soils, they found themselves fighting a losing battle. Those regions produce excellent oats, barley, flax, clovers, and grasses, but were not designed by nature for the industrial production of wheat.

The relation of protein/^{content} to baking quality has long been recognized, and the use of protein content as a grading factor in the United States aroused interest in the desirability and feasibility of doing the same thing in Canada. In February, 1928, the House of Commons passed a resolution asking the National Research Council to investigate the matter. Dr. J.G. Malloch, my student and colleague, and I made a survey of, and report on, American practices. The following year a further reference from the House of Commons expressed appreciation of this report and asked that the study be extended to the importing countries in Europe, to see whether a system of paying premiums for high protein wheat and reflecting the same back to the growers would find acceptance there. I went alone on this second mission. The conclusion then was that the difficulties of making protein a grading factor were greater than the probable advantages, but that the European market set great store by constancy of grade qualities,

and that it behooved us to see that no ~~xxx~~ low-protein wheat got into the top grades. Wheat grown north of the 12 percent line on the annual wheat protein map prepared by the laboratory of the Board of Grain Commissioners should be intended for local consumption, either as human food or as stock feed, rather than as an article of commerce.

The European survey brought me into contact with commercial and industrial barons, a breath-taking experience for one accustomed to the careful economy of university circles. The local representatives of the National Association of British and Irish Millers arranged a dinner meeting for me in the Shelbourne Hotel, Dublin, where we dined in a large upper room under the oak-raftered roof, with a huge fire-place to warm us. After disposing of a fourteen-course dinner, we continued our discussion of wheat grading and marketing far into the night. On the other hand, I had an amusing demonstration of the natural economy which has made Scotland prosperous in spite of its intractable environment. In Glasgow, a senior member of Bilsland's bakeries took me by bus to see one of their large plants. We got off a block short of the bakery because, as he pointed out, to go further would have increased the bus fare by a penny.

But it was in Berlin that I had my greatest surprises. My sister Dorothy was then studying there, and came with me, in case her superior knowledge^{of German} could be helpful, to visit the large grain firm which was the agent of the Canadian Wheat Pool. The head of the firm received us courteously in his luxurious office, and went to no end of trouble to get answers to my questions. "For this one," he said, "I must call our mill at Mannheim." Again, later, "I shall just telephone our manager at Düsseldorf." Finally,

"To answer that question I must consult New York." And he proceeded forthwith to do so! That was in 1929, when trans-Atlantic telephony was not so common as it is today. I began to wonder why I had gone to Europe at all, when I might have sat at home and done it all by telephone.

The interrogation ended, our host invited us to tea the following Sunday. There he had gathered a small but very interesting group, including the head of the Norwegian State Grain Monopoly, who happened to be visiting Berlin. We adjourned eventually to the Kaiserhof for dinner, transported in two Rolls-Royce sedans with liveried chauffeurs, in which later in the evening we were taken on a sightseeing tour of the city. Before parting, our host assured me that one of these sedans would be at my disposal during the remainder of my stay in Berlin. Much as I appreciated the offer, I felt it discreet not to accept so much hospitality.

But warmer and more appealing than any impressions of tycoons and big deals is my memory of Mr. George I. S. Broomhall, the founder of the world-famous wheat-reporting and statistical service that bears his name. In his modest office near the Corn Exchange, Liverpool, this quaint little old gentleman still sat on a high stool before the sloping counter where he had begun the work decades before, a veritable Dickens portrait. He was as kindly and gentle as his appearance, and helpfully arranged a meeting of the principal wheat dealers at the hour of morning coffee, which stretched out much longer than the usual break. Mr. Broomhall also gave me an introduction to the head of his office in London, who was similarly helpful.

The Garnet Wheat Controversy

Garnet was one of the last^{of} Saunders' productions which he named just before retiring as Dominion Cerealists. It was very early and high yielding, and its flour, when fresh, made fairly good bread. It seemed the answer to the northern farmer's prayer. But its gluten, that all-important substance which provides the structural support of a loaf of bread, turned out to be unstable, deteriorating quite rapidly in storage. The Grain Research Committee therefore recommended that it be excluded from the "Northern" grades, and stored separately. L.H. Newman, who succeeded Saunders as Dominion Cerealists, would probably have been agreeable to this, but he was under political pressure. Hon. W.R. Motherwell, Minister of Agriculture in the Mackenzie King cabinet, made a speech in Parliament charging "Dr. Tory and his satellite Dr. Newton" with standing in the way of northern farmers getting full advantage from this new variety, and with handing the "velvet" over to the grain dealers. Hon. ^{Robert} ~~Mr.~~ Weir, who succeeded Motherwell in R.B. Bennett's new cabinet in 1930, also took up the cudgel/s on behalf of Garnet. The Agricultural Committee of the House was delegated to investigate the matter, and, after I had given the scientific evidence on behalf of the Grain Research Committee, reported in favour of separate grading. The recommendations of the Grain Research Committee were never again challenged, however disappointing they might be to plant breeders who had worked patiently for many years to produce better-adapted varieties. Actually the cooperation between the cereal chemists of the Grain Research Committee and the plant breeders became closer and closer, and more and more mutually

helpful, over the years.

All the same, the Garnet wheat controversy fanned the smoldering discontent of the Department of Agriculture that the marketing standards of its grain products should be set by an agency of the Department of Trade and Commerce. But it was not till 1961 that the Board of Grain Commissioners, with its all-important laboratory, was finally transferred to the Department of Agriculture.

Silver Jubilee

On February 20, 1951, when the associate committees on Field Crop Diseases and Grain Research were holding their annual meetings in Saskatoon, a dinner was held in commemoration of the twenty-fifth anniversary of the founding of the Grain Research Committee. I had retired from these committees some years before, but the members used this Silver Jubilee as an occasion to honour me, through the generous words of Dr. J.A. Anderson and a specially bound copy of Plato's "Phaedo", the inscription signed by forty-five former students and colleagues. The copy of "Phaedo" is an artistic as well as a literary treasure.

In acknowledging the presentation I said, in part, "Nothing in my professional life has given me more pleasure and satisfaction than the association with these keen young colleagues in establishing the work of these committees and in founding the Division of Biology and Agriculture of the National Research Council. Whatever part of Dr. Anderson's praise I really deserve, I accept it all as a sincere expression of the goodwill and affection of these loyal old friends. The future of the work we started together I leave in their hands with complete confidence."

This confidence has, in the dozen years since, been more than justified.

Weed Control

Weeds are a continuing source of farm losses greater than those due to insects and plant diseases combined. They rob the soil of moisture and nutrients needed by farm crops; they crowd and shade useful plants; they increase the cost of cultivation, and of handling and cleaning grain crops. Some weeds, kept under control by natural prairie grasses, spread rapidly when the sod is broken up. Some of our worst weeds have been introduced from abroad, and if left unchecked may well take over the whole of our arable land. These multiple threats, to prairie agriculture in particular, brought about the formation of the Associate Committee on Weed Control in 1930.

As usual, we planned a comprehensive program, allocating different parts to appropriate institutions. Projects assigned to the universities were assisted by National Research Council grants. The staff of the Biology Division of the National Research Council, still located at Edmonton, carried out a weed survey of the prairie provinces during two seasons, and investigated the effectiveness of some 80 chemicals as herbicides, also the fire hazards in using oxidizing agents for this purpose. The most popular herbicide at that time was based on ^{sodium}~~calcium~~ chlorate, which, drying on killed grass or weed residues, could become explosively combustible.

The fire hazards were assigned to W.H. Cook to look into. I made only one important suggestion in regard to methods, that the inflammability of the cotton squares used as test material

might be conveniently measured by placing them between the electrodes of a sparking device. He carried out the investigation with his usual thoroughness and technical ingenuity. At the committee meeting a year later he gave a demonstration of fireworks which entertained as well as impressed the members. It showed the moisture range over which sprayed plant material could become hazardous, and how this could be controlled by judicious admixture of calcium chloride.

Among other very impressive outcomes of the committee's program over a period of years was the painstaking study of root systems and the interaction of weed and crop plants, carried out by T.K. Pavlychenko at the University of Saskatchewan. This was a contribution of permanent value to the science of plant ecology. It attracted worldwide attention.

The aphorism, "Eternal vigilance is the price of a clean farm," remains as true as ever. But the farmer, in his unending fight to keep ahead of weeds, has at hand more and better weapons as a result of scientific advances.

The Biology Division

The biology division of the new laboratories at Ottawa was at the outset mainly concerned with projects of special interest to western agriculture. This seems natural enough when we remember that the initial staff of the division were westerners who had followed Dr. Tory and me to Ottawa, bringing their interests and projects with them. Our staff and program for some years expanded only slowly, owing to the financial depression, but eventually took in such major fields of interest as food processing and the wider industrial utilization of grain crops, especially wheat and

barley.

Some of this work was to prove of the utmost value during World War II. On this point I shall quote a couple of paragraphs I contributed to John Macdonald's "History of the University of Alberta 1908 - 1958":

"With the movement of large numbers of troops to Britain, increasing that beleaguered island's food requirements, and the mounting hazards of sea traffic, the feeding of Britain during World War II became a problem of the utmost difficulty and seriousness. Canada, as the nearest country with large reserves of food-producing capacity, became Britain's chief source of supply, not only of staples like wheat, but of such items as bacon, butter, and eggs, critically needed to give variety to the ration and fill nutritional requirements. Alberta exported more of these products than any other province. Sir William Ogg, a noted British agriculturist, during a post-war visit to Canada, acknowledged publicly that without these supplies Britain would have starved. Alberta's contribution was due not only to the province's favorable soil and climate, and the patriotic industry of her farmers, but also to the patient research and experimentation of the Faculty of Agriculture, and of other stations largely staffed by its graduates, over many years, which had laid a solid basis for the prompt and effective utilization of these resources.

"An interesting concomitant of the rapid expansion in production was the provision of means for safe transport of these perishable goods. The need for refrigerated ships increased proportionately, and many of even the limited number available at the outbreak

of war were lost by submarine action. It was a graduate in agriculture of the University of Alberta on the staff of the National Research Council, Dr. W.H. Cook, who had the genius to devise practical, portable refrigerating units which could be slung quickly into the holds of ordinary cargo vessels, making these suitable for the transport of perishables. Under Dr. Cook's direction, great improvements were also made in the design of refrigerated railway cars, as well as in methods of curing bacon and preserving eggs."

Since the foregoing refers to the practical application of scientific knowledge rather than to the discovery of new principles, I should add that in the Division of Biology of the National Research Council we tried to maintain a balance between applied and pure science, that is between our use of existing knowledge and our contributions to new knowledge. Examples of the latter will be found in the projects of the plant science department of the University of Alberta described in the preceding chapter. If we think of the general stock of scientific knowledge as a sort of international bank, then a competent leader in research will try to make any major project scientifically self-liquidating, by arranging that its deposits in are equal to its withdrawals from this bank.

Wheat surpluses have a way of piling up periodically to an embarrassing and expensive volume. This happened between the wars, and stimulated a search for industrial uses other than bread-making and stock feeding. The term "chemurgy" was invented to describe the processing of agricultural products by chemical methods, including fermentation.

We investigated the conversion of wheat to industrial alcohol and butylene glycol. Alcohol, either alone or in mixtures with gasoline, can be used as fuel for automobiles. Butylene glycol is the starting point for an important form of synthetic rubber, and has other uses, for example, as antifreeze. But these products can be made more cheaply from other raw materials, and it became obvious that food uses for wheat should receive first consideration.

We tried fractionating the wheat kernel into starch, gluten, and wheat germ, all products of value in human nutrition, and with other possible uses. The problem of extracting gluten with its elastic properties unimpaired, so that it ^{could} ~~xxx~~ be used for strengthening weak flours, is of continuing interest to cereal chemists. The process is undoubtedly feasible, but if the gluten from our hard red wheat were used in Europe instead of the wheat itself, we should be left with the major fractions of the kernels on our hands. We have no outlets at present for such enormous residues.

It would seem that the solution of wheat surpluses must lie in the diversification of crops, with enough planning to keep the production of each in sensible relation to available markets.

Revision of Army Ration List

On the outbreak of the war we naturally diverted as much as possible of our resources to projects of direct use in the war effort. One of our more interesting experiences arose out of our offer to Col. Ralston, Minister of National Defence, to study and revise the army ration list, bringing it into line with modern nutritional knowledge. This was passed along to the Quarter Master General, who at first showed little interest. As time passed on,

and General McNaughton was going on leave from the presidency of the National Research Council to take command of the Canadian Army, I again brought the matter to his attention. "Tell you what to do," he said, "Write a letter to the General Officer Commanding for me to sign as president of the National Research Council. Tomorrow I'll receive that letter and start action." It happened also that by this time correspondence addressed to the Q.M.G. from food firms pushing their particular products for inclusion in army rations had reached mountainous proportions, and he was delighted to unload it on somebody else.

I visited the Department of National Health to seek cooperation, and was taken aback to find the responsible officer utterly opposed to the Research Council's having anything to do with the matter. Dr. Tory described this individual as one who would "prefer not to have a thing done at all unless he could get the kudos for it." Then out of the blue came a letter from the Department of National Defence, with two paragraphs, reading:

"1. The Minister requests that the National Research Council proceed to revise the army ration list, preferably in cooperation with the Department of National Health.

"2. If it is not possible to secure the cooperation of the Department of National Health, the Minister requests that the National Research Council proceed independently."

I informed the Department of National Health of the first paragraph, and stated that I was calling a meeting in Toronto (where the most substantial work on nutrition was then being done) to which I hoped the Department would send representatives. What did my contact do -- without telling me, of course -- but telephone the leading members of the Toronto group, summoning them to an urgent meeting in Ottawa the next morning, immediately after which he filed a report with the Department of National

Defence. The latter must have smelt a rat — and the half-baked nature of the report would be sufficiently obvious — for a day later I received a second letter, saying:

With reference to our letter of (date), the Minister now requests that the National Research Council proceed in accordance with the second paragraph."

We did proceed, and out of the conference with the Toronto group there developed not only a constantly improving ration list, but also a series of control laboratories maintained by the Department of National Defence, to check the quality of food items supplied by contractors. One of these laboratories was located in the University of Alberta. In the National Research laboratories, research was pressed forward on food processing, especially to improve such items as bacon, milk powder, and egg powder, so essential to beleaguered allies overseas, and to produce concentrated rations proof against deterioration when carried by troops in very hot or very cold climates.

Regional Laboratories

Settlers in any developing region always find there are local problems requiring investigation on the spot. The Dominion Department of Agriculture early established branch experimental farms, and eventually supplemented these with regional laboratories and research institutes. The National Research Council had an analogous history. I have already told something of the Council's cooperation with the universities of the prairie provinces and other agencies in attacking major regional problems such as cereal rusts and grain drying. A number of other projects had been initiated by the Council in the West before its main laboratories at Ottawa were opened.

After our move to Ottawa, the Council's first small regional laboratory was a barley malting laboratory in the University of Manitoba. Actually we took over this laboratory as a going concern. It had been started by Professor J.T. Harrison and continued by Dr. G.P. McRostie, both of whom had struggled along manfully with inadequate support. Before taking it over, we sent Dr. J.A. Anderson to the University of Birmingham for a period in 1935, to familiarize himself with Bishop's methods of experimental malting and malt analyses. Then Anderson returned and in our own laboratories at Ottawa refined the equipment and technique to a point where the malting quality of samples of barley could be assessed with an accuracy comparable to that obtainable in standard chemical analyses. Then Anderson's assistant, W.O.S. Meredith, moved to the Winnipeg laboratory. Since it soon became evident that the seasonal tests of malting quality, which this laboratory carried out, were logically a part of the program of the laboratory of the Board of Grain Commissioners, Meredith and his equipment were transferred from the university to the Grain Board. It all came back under Anderson's control when he was appointed director of the Grain Board laboratory in the spring of 1939.

In the summer of 1939 I travelled through the West looking for accommodation for the beginnings of a regional laboratory of wider scope. Wheat surpluses were piling up, and there was growing interest in finding new industrial uses for agricultural surpluses of various kinds. I had in mind the possibility of a decentralized laboratory, with the program divided between the universities of Manitoba, Saskatchewan, and Alberta. But even then the universities were crowded, and only the president of

the University of Saskatchewan offered me space. Here we undertook investigations on flax and other oil seeds.

The war supervened, and delayed for some years the planned expansion of our program. A conference at Saskatoon on November 3 and 4, 1943, attended by representatives of the National Research Council and the Dominion Department of Agriculture as well as of prairie institutions, recommended the establishment of a prairie regional laboratory to supplement existing facilities. Dr. C.J. Mackenzie, acting president of the National Research Council, lost no time in seeking authority to proceed, and this was soon forthcoming. War and post-war conditions delayed the completion of the building project, and it was June 8, 1948, when the commodious and well-equipped laboratory on the campus of the University of Saskatchewan was officially opened.

Dr. W.H. Cook was mainly responsible for planning the building and equipment, but at the opening ceremony Dr. Mackenzie paid generous tribute to my share in the project. Casting modesty to the winds, I dare to quote his words from the published proceedings of that occasion:

"No^{one}/person is more responsible for this laboratory we are opening than President Robert Newton of the University of Alberta.

"Dr. Newton has for years been a leader in agricultural science and education in Canada. He has been in succession a distinguished professor and research scientist in Alberta, the creator and first Director of the Division of Biology in the National Research Council, and finally the President of a western University and a member of our Honorary Council. It is a great credit to the integrity and genuine national outlook of Robert

Newton that the decision to locate the Prairie Regional Laboratory on this campus was taken on his recommendation.

"This project is the culmination of a series of advances in the application of science of which Dr. Newton was the principal architect and constructor."

Dr. Mackenzie's reference to the location of the laboratory leads me to pay deserved tribute to Hon. James A. MacKinnon, Member of Parliament for Edmonton, Minister of Trade and Commerce, and Chairman of the Committee of the Privy Council on Scientific and Industrial Research. In discussing the location of the laboratory he said to me, "Why don't we put it in Edmonton?" I replied, "That would be very nice for the University of Alberta, but you know there has already been some pressure from Winnipeg to have it located there. They would never accept a laboratory at Edmonton as a genuine regional laboratory. The only safe plan is to put it squarely in the middle of the prairies." He agreed immediately, as he always did to any reasonable proposal. I have never known anyone more unselfishly devoted to the welfare both of his own constituents and of the country as a whole. Modest and unassuming, he still pursued his ends assiduously and effectively. To the University of Alberta he was a real friend at court. No request was ever too much trouble, harassed though he was by a multitude of pleas from all quarters. It was a pleasure to present him to the Chancellor and Convocation of the University of Alberta in the fall of 1948 for the honorary degree of Doctor of Laws. He deserves to be gratefully remembered by his country.

Chapter IX

CONTACTS

My association with the National Research Council, both as director of one of its laboratory divisions 1928-41, and then as a member of the Council until 1950, brought me in contact with many interesting people both at home and abroad.

Visitors to our laboratories included a number I had for years admired from afar. Dr. Burton E. Livingston, professor of plant physiology in Johns Hopkins University, had by his writings stimulated my interest in growing plants under controlled conditions of light, temperature, and moisture. I took pride in showing him the plant growth chambers we had built for this purpose, which were probably among the best of their kind up to that time. Dr. N. Vavilov I have mentioned already. The subsequent liquidation of this outstanding plant scientist by the Communists was on a par with the execution of Lavoisier by the French revolutionists. He approved our program, and suggested more extensions of it than we could possibly carry out! Dr. Herbert Freundlich, the renowned author of Kapillarchemie (colloid chemistry), who had to flee Hitler's Germany, had read my papers on colloidal properties of plant tissues in relation to frost and drought resistance, and he, too, urged extension of the work. Dr. R.A. Fisher, primate of the statistical hierarchy, with whom one of my students had studied at Rothamsted in preparation for leading that section of our work, was pleased with the progress of this student.

Our Science Association in the National Research Laboratories usually invited one or two outside speakers each year, naturally choosing outstanding scientists. These visitors included some old

friends. Dr. R. A. Gortner, professor of agricultural biochemistry in the University of Minnesota, proved as stimulating as ever, both in his formal lecture and in his informal visits with the staff. Crocker, Dr. William, the benign, fatherly director of the Boyce Thompson Institute for Plant Research, at Yonkers, New York, told us of important advances in several fields, especially in unravelling environmental effects by growing plants under controlled conditions. His extensive equipment for this work had earlier given us useful hints in designing our own.

In 1935 my wife and I attended the International Botanical Congress in Amsterdam. We started early, sailing from New York to Oslo on the "Frederick VIII", a Danish ship which gave us one of our pleasantest voyages. We had time for a brief but altogether delightful tour of the Scandinavian countries. This took us by train, bus, and boat through the fjord country as far north as Trondheim, then across to Stockholm, a brief side trip by air to Helsinki, then three days through the canal to Göteborg, thence in turn to Malmö, Copenhagen, Hamburg, and so to Amsterdam.

In Norway we were impressed not only by the museums, art galleries, and magnificent scenery, but also by the complete honesty of the people and the quiet behaviour of the children in streets and public places. Once we changed buses at a crossroads in the open country, with a couple of hours to spare. We simply piled our things by the roadside, leaving them there while we trudged off to an interesting village a mile away, in full confidence that our belongings would not be disturbed. We enquired about the surprising restraint of the children, and were informed it was the outcome of schooling directed to that end. We heartily approved!

Finland had been to us a country rather hazy and remote, so that we were scarcely prepared for the very advanced civilization we found there. Helsinki's museum we thought the best organized of any we had visited, and its art gallery, like the one in Oslo, contained many distinguished canvases reflecting the true spirit and colouring of the north. Perhaps most impressive of all was a bookstore covering a whole city block, the largest we had ever seen. The only thing in Helsinki we could not fully approve was its taxi drivers, who drove like Jehu, while men, women, children, and dogs scattered ahead of us!

Between Göteborg and Malmö we stopped to visit the agricultural experiment station at Svalöf. This long-established institution has about it an aura not unlike that around Rothamsted in England, except that the latter is best-known for its studies in soils and plant nutrition, whereas Svalöf is noted for plant breeding and plant biochemistry. Its director, DR. Åkerman, had published some pioneer work on the significance of sugars in frost resistance, which I had cited in my own early papers. I was therefore known to him and he welcomed us the more warmly for that reason. In going through his laboratories we found that the older members of the staff used German as their second language, while the younger members used English. This reflected a change in Sweden's educational policy after the First Great War. In bidding us good-bye later, Dr. Åkerman commented that our visit had been something of a landmark in their history, for though they had had many visitors from the United States and a few from Canada, we were the first who could speak any language but English! That situation is now being remedied, with the surge of interest in foreign

languages created by accelerating intercommunication and increasing interdependence among nations.

In Copenhagen we stayed in Gruntvig's House, a hostel named after the famous bishop, which had been recommended to us by a native as the place where we would see best the real people of Denmark. This was a helpful experience, as we had little more than time enough for conducted tours of the city and country. These showed us much of beauty and historical interest, including Elsinore and other castles, and glimpses of their rich grasslands and famous ~~wh~~ black-and-white cattle, but gave us little contact with the people themselves. We did manage to visit the Carlsberg Laboratories, and met its distinguished director, Dr. S.P.L. Sörenson, whom I had hitherto known only by correspondence. For many years he had kept me supplied with his laboratory reports.

We had notified the Alsterhof hotel in Hamburg, where my wife had stayed for some time during her student days of 1931-32, of our impending arrival, and the proprietor and his family gave us a great welcome, with flowers in our room and every possible attention -- true German hospitality. But we received a minor shock next morning at breakfast when the newsboy approached our table, clicked his heels and saluted with upraised right arm while he barked sharply, "Heil Hitler!" Then he politely offered us the morning paper. A couple of days later, on our heavily loaded train to Amsterdam, there was a general sigh of relief as we crossed the border, and passengers who had been stiffly reserved up to that point began to talk freely.

Again in Amsterdam we were heartily welcomed at a quaint little hotel, Het Wapen van Friesland, where my wife had prepared the way

in 1932. My sister Margaret and brother William stayed nearby. Several other Canadians, Americans, and Britons we knew were among the delegates, and we made many new acquaintances. As usual, we were impressed by the superior linguistic accomplishments of the Europeans. The research students who met us during our tours of universities and institutes commonly explained their projects in Dutch, English, French, or German, as needed, with almost equal facility. At that time problems of the Dutch East Indies⁴ in agriculture and forestry figured prominently in the programs.

Other overseas journeys included attendance at the British Commonwealth Scientific Conference in 1936 and again in 1946. Only one other member of these two conferences attended both of them, namely, Sir David Rivett, head of the Australian Council of Scientific and Industrial Research.

In 1936 my wife and I fulfilled a plan hatched on our honeymoon twenty-two years before ~~to~~ to tour southern England by motor car. The start from Knightsbridge, past Hyde Park Corner, driving in London traffic at high noon on the wrong side of the road (to us) in a car full of strange gadgets, was trying, but we soon got used to it. We reached Canterbury in time to visit the cathedral in the full glory of the westering sun, an unforgettable experience. Our tour took us around the south coast and up the west coast as far as Aberystwyth. Some of the country was familiar to me from war training days. On the way we visited several agricultural institutes and bureaux. Later we joined other members of the conference in a tour of northern institutes and bureaux, going as far as Aberdeen. We were impressed by the fact that our

otherwise well-appointed hotel ~~the~~ room in Aberdeen had no waste basket. "Waste not, want not," was evidently their motto!

The institutes, dedicated to gathering new information in the field of agricultural science, and the agricultural bureaux, designed to collate and distribute this information throughout the Commonwealth, were off to a good start by 1936. The conference was unanimous in supporting proposals for expansion of these services, with united support. But our most thrilling moments came not so much out of the proceedings of the meetings as from the incidental glimpses this peripatetic conference afforded of British history and traditions.

After lunch at Corpus Christi College, Cambridge, we inspected some of their literary treasures, including the original Saxon Chronicles. We had known vaguely that such things existed, but scarcely expected to see them with our own eyes. The librarian turned up for us the entry that had been made on the death of King Alfred.

At the Edinburgh Town House dinner the head table bore the gold mace and sword of state — the first time they had been brought out for a dinner in the recollection of those present — also the gold plate belonging to the corporation. My wife, after being ceremoniously presented with a corsage by the Lord Provost, was taken in by Sir Thomas Holland, principal of the university. Everything was carried through with tremendous dignity, even the piping-in of the haggis. The Castle was floodlighted in our honour that night.

At Aberdeen we were welcomed by Sir John Boyd-Orr, the world-famous nutritionist, and other notables. A Sunday excursion up the Dee valley by bus was especially memorable. We arrived at

Crathie church just as King Edward VIII, the Duke and Duchess of York (he to become unexpectedly soon King George VI), with Princesses Elizabeth and Margaret Rose, and the Duke and Duchess of Kent came out after the service to return to Balmoral. Five miles of motor cars and buses were parked along the road waiting for a glimpse, but we, favoured mortals, were escorted straight through. The strain developing in the Royal Family could be detected despite well-bred efforts to present relaxed, smiling faces to the people. The break came soon afterwards. Happily we could not foresee that, and enjoyed our lunch at Braemar and especially tea on the way back at Douneside, where we were entertained by Lady McRobert and her family. Again kind providence veiled from our sight the tragedy which overtook that family a few years later. We were not surprised that a fighter plane named "McRobert's Reply" was the answer of that gallant lady to the loss of her two sons early in the war.

The state dinner in London which wound up the 1936 conference was, oddly enough, memorable to newcomers chiefly for the performance of the Master of Ceremonies. This paid functionary stood in bright uniform behind the presiding officer. General McNaughton, as leader of the Canadian delegation, was given the honour of speaking first. When the time arrived, the Master of Ceremonies leaned forward, struck the table a resounding blow with his heavy gavel, and announced in stentorian tones: "Mr. President, my lords, ladies and gentlemen, pray silence for General McNaughton." The volume of sound and its unexpectedness nearly put even the battle-hardened General off his stride!

In the last of the letters I wrote my family during that trip -- which they saved for me as a form of diary -- I find this statement:

"Mr. L.B. Pearson, First Secretary at Canada House, told me he had never known a conference that worked so hard and so fast." Not all of our time was given over to excursions and teas! Mr. Pearson was then embarked on what promised to be a brilliant career in the diplomatic service. I doubt that the idea of entering active politics and ending as Prime Minister had yet crossed his mind.

The 1946 conference came too soon after the war to permit of much jaunting around, and we were unable to take our wives. After spending the night of May 31 in a crowded, third-class hotel in New York, we boarded the "Queen Mary", which was still equipped as a troopship. This great ship was so high and top-heavy it rolled a great deal — that was before later modifications to alleviate this defect — and our double-deck bunks being crosswise of the ship we sometimes felt we had spent much of the night standing on our heads. London was overcrowded with visitors for the victory celebrations, and again we had to be content with a small hotel still equipped as a soldiers' hostel. When a few days later it was announced that we were to move to another hotel, and we began to speculate on prospects for improvement, one of our party, ^{C. C.} ~~Gilbert~~ Monture, a full-blooded Iroquois, remarked, "There is nothing in our recent history to justify much optimism."

For all these initial privations — and they were not really serious — the meetings were enjoyable as well as successful. We were welcomed by the Earl of Athlone in the Senate Chamber of the University of London, of which he was Chancellor, and then presented to King George VI and Queen Elizabeth, who had graciously attended the ceremony. The Canadian delegation gave H.R.H. Princess Alice,

Countess of Athlone, a large box of chocolates one of our members had thoughtfully brought along -- a rarity in London in those early post-war days. She was delighted with this gift from "home", having only lately returned to England after her husband's Canadian Governor-Generalship.

The 1946 conference was a double-header. The Royal Society Empire Scientific Conference, which spent about a week each in London, Cambridge, and Oxford, covered the whole field of science, but with special reference to problems of interest to more than one country and in which cooperation might be useful. The British Commonwealth Official Scientific Conference, which followed immediately with ten days' meetings in London, considered all the recommendations sent forward by the Royal Society Conference, and added a few of its own. Dr. C.J. Mackenzie, president of the National Research Council, was chairman of the Canadian delegation of fifteen. I was vice-chairman, and once had the thrill of presiding over the conference while sitting in the much-elevated seat of the president of the Royal Society, under the portrait of Charles II, the founder. Sir Isaac Newton filled that seat during the period 1703 - 1727, and Sir Joseph Banks -- one of my wife's ancestors -- for the incredible period of 1778 - 1820.

The Newton Tercentenary, which we were able to attend, brought to London additional scientists from many lands. It was a rare privilege to meet, or listen to addresses by, such world-renowned figures as Nils Bohr, who had brilliantly extended the theories of Rutherford on atomic structure. Bohr's model of the atom had been especially helpful to the layman in grasping something of the wonder of that infinitesimal cosmos.

In our own conference, probably no member attracted more attention than Sir Shanti Bhatnagar. Witty and incisive, he ornamented every office or duty he fulfilled. India had not yet achieved full independence, and at the state dinner, where Sir Shanti was assigned to propose the toast to His Majesty's Government, he pulled their legs unmercifully. For instance, he presumed their hope was that, "under the influence of good wine I might blurt out some words of praise!" His humour was the spice that made his solid contributions highly acceptable to us.

In our Canadian delegation we were saved from any danger of boredom by the lively good humour of ^{C. C.} ~~Gilbert~~ Monture. He could have been chief of the Iroquois, but chose to become Chief of the Bureau of Mines. The night we arrived in London he went out for a walk by himself, and promptly got lost. Of course we ragged him about an Indian needing a guide to bring him home, but he retorted, "Indian not lost, teepee lost." When a year or two ago an Indian was selected for the Canadian Senate, I was disappointed that Monture was passed over in favour of one who had spent all his life with his own people. Monture had completely transcended the limitations of his youth on a reserve, and seemed an outstanding example of successful integration. But he himself is much too philosophic to worry about worldly honours or material wealth. When questioned on the latter point he replied, "I have no desire to be the richest man in the cemetery."

Among the few short excursions we made as a conference group in 1946, I especially enjoyed one organized by the British Association for the Advancement of Science to Down House - Darwin's home in Kent - not only for its intrinsic interest and the beauty

of the countryside, but because I found myself in company with Sir Richard Gregory, president of the B.A.A.S that year, distinguished among other things for his editorship of "Nature". This periodical I had always regarded as a model of editing. Gregory's book, too, "Discovery, the Spirit and Service of Science," is an example of popularization at its best. When I expressed appreciation of this book, Gregory told me it had been adopted in India as a text for courses in English, but was later discontinued because it provoked the students to ask too many questions which the teachers could not answer!

Another person I had admired from afar for the quality of his writing as well as for mastery of his subject was Sir Richard Livingstone, then Vice-Chancellor of Oxford. I met him first in Rhodes House, when he welcomed conference members to the university in the measured, well-knit periods of the mature classical scholar. His experience as vice-chancellor stimulated him to supplement his books on Greek thought and civilization with shorter ones on education, and two years later (1948) we spoke about these when my wife and I met him at a garden party at Oxford. Nowadays, when there is much questioning of hitherto accepted theological doctrines, it is refreshing to read in "Some Thoughts on University Education" (National Book League, 1948) Livingstone's appreciative and sensible approach to the subject: "Whatever we may think about it, religion is the most important of all subjects, both in history and in itself, and to ignore it is to narrow the outlook and starve the mind. By religion I mean a study of what we should think of the meaning and ultimate nature of the universe; how, in the light of the view we form, we should live: the different answers which

have been given to these questions by great religious thinkers."

On the invitation of Viscount Bennett, I found time in 1946 for a weekend excursion to his 100-acre estate of Juniper Hill, at Mickleham, Surrey. There for twenty-four hours I luxuriated in delightful surroundings, long interesting talks, and fresh vegetables and fruits from his gardens in unlimited supply. These latter we missed in the still restricted hotel menus. He left to his usually impeccable butler the choice of a film for showing in his private little theatre Saturday evening, and expressed embarrassment that it was "too frivolous to produce for a university president!" At Sunday morning breakfast, just the two of us, we continued our conversation until the large bowl of strawberries on the table was empty. It reminded me of an experience in Edmonton the summer before, when my wife telephoned me that Lord Bennett and Mr. H.R. Milner had arrived at the house. I hurried over, to find the two of them in the kitchen, standing on opposite sides of a table bearing a huge bowl of luscious Bing cherries. Later they adjourned to the living-room -- with the bowl! On that visit his Lordship also took a great fancy to one of my wife's oil paintings of Bow Falls, Banff. This she gladly offered as a gift, and in 1946 I noticed it placed directly opposite his desk chair in the library. Before I left Juniper Hill, Lord Bennett gave me in charge for my wife a handsome large plate in sterling silver, its wide border overlaid in low relief with a wreath of fruiting grapevines and, in higher relief, with ripe wheat plants -- all this overlay in solid gold. This plate, he said, was his most prized possession, and he coupled his gift with a cordial invitation to my wife and me to be his guests on our next visit to England.

But he was gone before our visit in 1948.

In 1946 he was basking in the real affection of his retainers and of the community of Mickleham. His neighbour, Lord Beaverbrook, dropped in for Saturday afternoon tea to show off ^{the} ~~his~~ new station waggon he had just secured after months of trying, to chore around his farm. He fired questions at me like bullets from a machine gun. It was easy to understand how he had become a news baron! Lord Bennett, in contrast, had the relaxed, quiet manner of the elder statesman, and our rambles together through his parklike domain after tea, and again Sunday morning after we had finished the strawberries, were thoroughly enjoyable and, to me, illuminating. When I mentioned that I had sometimes toyed with the idea of retiring early to have time for a fling at politics, he strongly advised against it. He said he himself had entered politics too late, and was always at a disadvantage with Mackenzie King, who was a complete professional, knowing the business from the ground up.

* * * * *

We never ceased to admire the unquenchable spirit of the Britons after their long siege. True, the women of Britain were obviously weary of queuing — I even saw one long queue before a butcher's stall where unrationed horse meat had become available — and there was less enthusiasm than expected over the victory celebrations, many feeling that the expenditure of money and effort might better have been directed to improving living conditions. It was a cool summer, apart from one or two brief periods, and the fuel shortage precluded ~~any~~ heating of buildings. In one of my letters home I remarked that the college buildings in which we were housed at Cambridge were "full of hoary antiquity and hoar

frost." But the local inhabitants gave no sign of real discontent. The exercise of the Englishman's ~~right~~ traditional right to grumble could not hide his complete faith in, and loyalty to, his country.

Our return voyage from Southampton to Halifax on the "Aquitania" was one of the best in my experience, and we were astonished to hear that that fast, steady, and extremely comfortable ship was on her last trip before being scrapped. She was still fitted as a troopship, though the top bunks of the double-deckers in our first-class cabins had been removed. Troops and service dependents made up most of the passenger list. There were said to be 2000 war brides on board! It was quite diverting the first day to lean back in one's dining-saloon chair and watch the assembled company going after their food like ravenous wolves — a reaction in most cases to years of privation. The brides became almost hysterical the first evening when they found they could buy a whole box of chocolates at the canteen!

By special dispensation, the teas and receptions we attended during the conference had been permitted a moderate supply of sweetmeats, and it was almost touching to notice how these were appreciated by the local members, unaccustomed to such delicacies. The only real hardship improvident visitors might have suffered arose from the absence of soap and towels in the hotels, and the difficulty of getting laundry done. I remember mentioning to an English trade commissioner, some time after I reached home, a few items of personal interest to me that had not yet^{re-}appeared on the market since the war — including Pears soap. On this last item his comment was, "We are eating it." By this he meant that the fine quality fats and oils needed in its manufacture were going

into margarine and other foodstuffs. Happily these conditions gradually improved.

A.H. Reginald Buller, F.R.S.

Of all the persons with whom I had more frequent contact because of my association with the National Research Council, none was more individual or more striking than A.H. Reginald Buller, professor of Botany in the University of Manitoba. He was for several years the only Fellow of the Royal Society (London) west of Toronto, and took pride in that distinction.

One of my earliest recollections of Buller has to do with the selection of a site for the Rust Research Laboratory, after the second rust conference in Winnipeg in 1924. There was a prairie blizzard in progress and the street cars were able to get only to the Fort Garry junction. From there we walked over the wind-hardened drifts. Only a few hardy souls attempted the journey, but Buller was one of them. He was muffled up in his well-known and well-worn raccoon coat, which I had ~~earlier~~ seen a year earlier hanging on the post which ~~st~~opped the stair bannister leading to his office. He outlined to me then the advantage of keeping it there. He could throw it off without loss of time as he entered his office, and put it on with the same convenience when leaving. That reminded me of his selection of the McLaren Hotel as a place of residence. It was the first hotel he ran across on his arrival in Winnipeg, and he never had time to move afterwards. Any minor inconveniences were not to be weighed against the importance of not interrupting his researches on fungi. Incidentally, he had come fairly freshly from graduate work in Germany, where he had gotten used to accenting the first syllable of most words.

Accordingly he called it the McLaren Hotel, and so he pronounced it to the end of his days.

His sense of humour came out when he explained why he had chosen Winnipeg as a place to settle in. He wanted to continue the study of fleshy fungi, and when he found Winnipeg described as "the mushroom city of the West" he knew it was the place for him. Once settled there, he found one disadvantage to an Englishman accustomed to using the afternoon/^{tea}hour as a period of unhurried discussion. He complained that he had to look sharp about drinking his tea, to save it from evaporating in that dry atmosphere.

Buller's lectures were something to remember for their liveliness as well as for their content. It was not unusual for him to rush up a stepladder in front of his class to drop winged seeds or models illustrating modes of dispersal. I remember vividly his lecture on insectivorous plants, especially the climax illustrated by a quick series of lantern slides showing the fly in various stages of increasing peril, till the fly slipped and stark tragedy ensued. I remember, too, his skill as an illustrator on the blackboard, especially his simple method of holding two pieces of chalk to draw the sinuous, exactly parallel lines needed to portray the growth of threadlike fungal bodies. When radio lectures for the public were introduced, Buller found it hard to stand still before a microphone. Before he himself knew it, he would be gesticulating and marching up and down as was his normal habit. He would have been at his best over TV.

He was always a stimulating member of any meeting. His contributions were spontaneous and imaginative, and often enriched by literary allusions. At a conference on the need of a national

botanical garden, M.O. Malte, director of the National Herbarium, spoke of visiting a branch experimental farm, where he had asked his guide about a certain yellow-^{flowered plant}~~flowered plant~~ they came across. "Oh," said the guide, "it's a kind of buttercup." "Actually," said Malte to the conference, "it was a primrose." Immediately Buller broke in with,

"A primrose by the river's brim,
A buttercup it was to him,
And it was nothing more."

I had reason to be personally grateful to him at one of our early rust conferences, when I reported some exploratory work on the biochemical basis of rust resistance in wheat. It was a new approach in those days, and not fully understood or appreciated by all workers. Immediately after my report Buller rose to compliment the work and likened me to a knight errant, tilting at the dragon, trying first^s here, then there, to find a chink in his armour that my lance might pierce.

But his customary benign courtesy could change to devastating onslaught when his righteous wrath was aroused. A member of the administrative staff of the University of Manitoba was given some authority he was not yet experienced enough to use judiciously, and became rather an officious nuisance. At a faculty council meeting this official rose to complain that when he visited Professor Buller's office in the course of his duties, Professor Buller had unceremoniously thrown him out. Immediately Buller rose to say, "Mr. President, what the gentleman says is perfectly true. My only regret is that I was just getting over the 'flu and was not feeling very strong, otherwise I would have thrown him twice as fast and twice as far." Professor O'Donoghue, Buller's

zoological colleague who related this incident to me, then rose to move that they proceed with the next item on the agenda. The official learned his lesson and ceased from troubling.

Less vigorous but equally effective in its way was his championing of Dr. C.E. (later Sir Charles) Saunders. Buller wrote, and published at his own expense, "The Story of Marquis Wheat," to bring Saunders' great contribution to public attention. This book undoubtedly played an important part in securing for Saunders belated recognition and reward.

Buller also published at his own expense a pamphlet entitled "The Site Question," trying to bring order out of the chaos of opinion on the proper location of the University of Manitoba. That his judgment in this case was not borne out by events does not detract from the worthiness of his effort. When at last his department was housed in reasonably adequate quarters on the Fort Garry campus, he was disappointed to find that the elevator projected for his building was cut out at the last moment for lack of funds. The prospect of climbing three floors several times a day was one of the factors deciding him to retire early and devote himself to completing the material for his monumental set of books, "Researches on Fungi."

Ordinarily he spent the summers at Kew, where library and herbarium facilities were better. When I visited him there in 1936 we looked through the manuscript and meticulous drawings for his 7th volume. Some of the chapters had been written in 1921, and revised at various times subsequently, all dates carefully recorded on the first page of each. He showed me these to convince me he never rushed hastily into print! When I visited him in a

Winnipeg hospital during his last illness, his first thought was still for his work. Fortunately the last volume was edited and published under the supervision of competent friends.

At Kew in 1936 he also showed me his manuscript for the history of mycology, already well advanced. He planned it as the capstone of his career, and it is a pity he did not live to complete it.

My sister Dorothy had many interesting, occasionally trying, experiences as Hudson's Bay Research Fellow with Buller for two years. He gave her no formal instruction, but often dropped in after his morning lectures to chat about her work. Sometimes he forgot time completely and went on till mid-afternoon. Then he might suddenly come to, and ask, "By the way, have we had lunch yet? No? Well, it's too late to bother now. Come into my office and we'll have a cup of tea."

His devotion to his subject was sometimes a trial to his colleagues in the Rust Research Laboratory, where he worked for a time ^{as a visitor} after his retirement. He never doubted for a moment that his was the most important activity going on there, and made time-consuming demands on the staff. But he showed his appreciation by leaving ~~to~~ that laboratory his splendid botanical library — and his ashes!

Buller belonged to a fast-disappearing race, the courtly old-world scholar with ready interest and lively opinion in any aspect of human thought and activity which commanded his attention. His conspicuous devotion to a particular field of study was seasoned by flights of fancy into unrelated fields. One of his hobbies was limericks. When I visited him in 1923 he showed me his card-filing system, in which limericks and poetry had their

place of honour equal to the Basidiomycetes. He was still in the flush of excitement over the appearance of one of his limericks in "Punch", and proudly showed me the money order he had received in payment. That particular limerick has been so often inaccurately quoted and misattributed that I record it here as he gave it to me:

There was a young lady named Bright,
Whose speed was far faster than light,
She set out one day
In a relative way,
And returned home the previous night.

Later, when Einstein's theory had been extended to include the relations between mass, energy, and speed, Buller wrote this supplementary stanza:

To her friends said the Bright one in chatter,
"I have learned something new about matter:
As my speed was so great,
Much increased was my weight,
Yet I failed to become any fatter!"

Buller's poetic muse took other forms as well, such as gently satirical ~~ixxxx~~ epics. But they always left even their target with a smile. He could be serious, too, as witness his sonnet on "The University of Saskatchewan." The last two lines of this poem might have been written as his own epitaph:

"Live on, and may the scholars taught by thee
Cherish great thoughts with true humility."

Chapter X

SEVERANCE

In the spring of 1940 I left the National Research Laboratories to become dean of the faculty of agriculture in the University of Alberta. The move caused great surprise to my acquaintances, few of whom would believe that I would accept the substantial cut in salary involved, unless I had been promised the presidency of the university, the incumbent, W.A.R. Kerr, having reached the age of 65. The selection of the university president in Alberta is the prerogative of the Premier, and I had never met Mr. Aberhart, nor was such a question raised in my correspondence with Dr. Kerr. I had told Dr. Kerr not long before that I was dissatisfied with the way things had gone in the National Research Laboratories after Dr. Tory left, and that I was considering a change. It was therefore perfectly natural that, when Dean Howes died, Dr. Kerr should inquire whether I would be interested in filling the position.

My wife and I had crossed the Canadian prairies by motor car during the harvest season of 1939, on our way home from the Pacific Science Congress in California, and had fallen again under the spell of that region. We started eastward each morning with a sky perfectly clear except for "the wings of the morning," that spreading cloud formation in the east, which gradually advanced and resolved itself into battalions of fleecy clouds marching across the deep blue heavens. The fields were laden with a rich golden harvest, some already in stooks, some still awaiting the binders, the whole a scene of beauty and promise. Little wonder that our original enthusiasm for the prairies was reawakened.

One thing happened between that time and Dr. Kerr's invitation

to make me hesitate. General McNaughton had gone on leave from the National Research Council to take command of the Canadian forces, and on his recommendation, Dr. C.J. Mackenzie, dean of the faculty of engineering in the University of Saskatchewan, and a member of the National Research Council, had been appointed acting president of the Council. I not only liked Dr. Mackenzie personally, but felt he had the touch of a genuine administrator of a research institution. When he sought to dissuade me from leaving, I told him frankly that if he had been president instead of acting president my answer might have been different. But I accepted his proposal that I take a year's leave of absence instead of resigning, to see how things worked out. As it happened, I was appointed president of the University of Alberta when the year expired, and all my acquaintances were convinced they had been right in assuming I had been promised this appointment ahead of time!

There was still great prejudice against a Social Credit government, and deep suspicion of what it might do to the credit of Alberta. Not a few persons raised this argument against my going there. Not so Dr. Mackenzie, who dismissed it by saying the province was much greater and more durable than any government, and Alberta's future was assured. As it turned out, the province has never been better administered by any government. Hon. Mr. Justice H. H. Parlee, chairman of the University Board of Governors during my regime, who, as a leading corporation counsel before his appointment to the Bench, had had much to do with governments, said to me once that he had known every Alberta government since the province was established, and "this government has more brains

than all the rest put together." He added, reflectively, "I like them during the week, when I have dealings with them, but on Sundays I have time to think and worry about their monetary theories." I admit that I shared his doubts on this point. I had listened to Major C. H. Douglas expounding these theories to the Canadian Club in Ottawa, but when it came to the details of carrying them out he became vague. No subscriber to the "Ottawa Citizen" in those days could escape hearing constantly about Social Credit. Its editor, Mr. C.H. Bowman, was such an ardent disciple that no matter what the subject of his editorials they nearly always ended with some reference to Social Credit. Superficially, at any rate, the theory sounded too much like getting something for nothing to be easily accepted.

To return to my reasons for leaving Ottawa: As mentioned earlier in these memoirs, I was wary of becoming involved a second time with the Civil Service. Before accepting the appointment, I asked Dr. Tory whether the National Research Council was to be considered Civil Service or in any way subject to its regulations. He assured me that it was a corporation governed solely by its own charter. But the onset of the Great Depression and the change of government, with a Prime Minister antipathetic to him, were two factors he had not reckoned with. His relations with the Prime Minister were politely formal rather than cordial, and he felt he had to walk carefully.

A third factor was the Civil Service Commission. Jealous of a big new organization escaping its clutches, the Commission did not fail to call ^{to the} attention of the government any apparent deviation of the Council from established practice. Lust for power is a

basic human weakness. "All these kingdoms will I give thee...." Even the best of us does not resist such temptation as completely as did our Lord. Some of our worst labour troubles stem from power struggles between rival unions — and so on, through the whole gamut of human relationships.

In an effort to stave off complete control by the Civil Service Commission, Dr Tory handed over to its jurisdiction what was called the "subprofessional staff" — technicians, workshop staff, clerks, stenographers, etc. — and assured the government that the professional staff would observe all relevant civil service regulations, including the keeping of attendance records. That had no bad effects while Dr. Tory remained president, but under the more bureaucratic regime that followed took on for me a sinister aspect.

General A.G.L. McNaughton had come directly from the post of Chief of the General Staff, and naturally tended to administer the National Research Council in the same way as the army. He objected to the directors' habit of getting together informally for discussion of matters of common interest. "We can't have the place run by soviets," was his comment. He issued through the secretary-treasurer a daily sheet of "executive instructions", which were merely army routine orders under another name. The secretary-treasurer, a very efficient office man nurtured in the civil service from his youth up — and, be it added, a very loyal servant of the National Research Council — revelled in drafting administrative orders for the president to initial. Even though no exception could be taken to most of them, the method introduced trappings of bureaucracy more suited to the army than to a research

institution. Eventually I ran foul of them. Returning from Winnipeg after presiding over an exceptionally heavy series of associate committee meetings, I told my secretary I was going to take a few days off to rest. It did not occur to me that the time involved was three and a half days -- we worked Saturday mornings then -- and that a civil service regulation stated that an absence of more than three days must be covered by a doctor's certificate, otherwise a corresponding salary deduction would be made. In due course I received from the secretary-treasurer a carefully polite note that he had consulted the president, who felt that no exception to this rule should be made for directors. I decided right then to quit the service of the Council at the first reasonable opportunity.

I was the more ready to make a change since, as I became more and more diverted from research to administration, I developed a conscious feeling that I should not as a rule stay longer than ten years in one place. In that time, I felt, I should tend to exhaust my stock of original ideas relevant to a particular position, and be in danger of drifting into routine administration. In fact I have found that a change of jobs always presents a new challenge, stimulating fresh interest, energy, and ideas. I had been director of the Division of Biology for twelve years -- four years on a half-time basis and eight years full time.

But I did not leave without regret. Since we had moved to Ottawa in the depth of the Depression, our growth in laboratory staff numbers was for some years very slow. I had mainly the group of my own students who had come with me from Edmonton. We remained a closely knit group, and when J.A. Anderson moved to Winnipeg in the spring of 1939 to take charge of the laboratory of the Board

of Grain Commissioners, it was like a first break in a family circle. Anderson asked me for some written advice on administration, and after some reflection I gave him a short list of precepts which more than once later he referred to appreciatively. Since they do incorporate my philosophy of administration, I shall record them here.

"Precept upon Precept"

1. People work best when contented and happy. Avoid upsetting them unnecessarily. If necessary, lead them a step at a time.
2. Make associates, rather than assistants, of your staff. Plan their work with, not for, them, giving due weight to their ideas and preferences, indeed favouring these when supported by sound reasons.
3. Recognize and cultivate diversity of talents in your staff. Allow for a normal share of defects in each and while doing all you can, tactfully, to help them overcome these, study also to be tolerant and create an atmosphere in which personal angularities do not interfere with the smooth and efficient working of the laboratory.
4. It is sometimes better to pass over minor mistakes, or infractions of discipline, leaving correction to be made by example, or at a time when it can be done unobtrusively. Be sure a thing is important before you make it an issue.
5. Strive to create a corporate sense of responsibility. This depends on each individual feeling he has a real job to do, and will be fostered by delegating to each as much responsibility as he is ready to carry and giving attentive

consideration to his suggestions. Start cautiously till the members prove themselves, but keep pace with their growth.

At Ottawa, with a larger staff, I spent an increasing amount of time in reviewing, criticizing, and editing the drafts of their papers and reports. The difference was that in Edmonton the papers had been joint enterprises, in which I was usually the senior author. Now the men were fully qualified scientifically to report their own work independently. Once my wife took me to task for spending so much time on their papers, saying, "Why don't you spend the time writing your own papers? Some day you will wake up to find yourself an old man with much of your best work unpublished." How completely accurate was her prophecy! An ever-growing load of organizational and administrative responsibility was of course a contributing factor. But I have at least two compensations. The first is a minor one, in the form of a memo from F.E. Lathe, director of the Division of Research Information, who was responsible for publishing the Canadian Journal of Research, saying, The manuscripts of the Division of Biology are 'a thing of beauty and a joy forever'." The major compensation is a group of men still carrying the torch of science with papers that do not obscure its light, and who have^{been} generous in acknowledging my early help. Several of these men have done important editorial work of their own. W.H. Cook has been editor-in-chief of the Canadian Journal of Research, and J.A. Anderson editor of Cereal Chemistry, the leading American journal in this field. My published papers pushed outward a little the bounds of knowledge, and excited some interest at the time, but have long since lapsed into the limbo of "historical background". My unborn papers

might have retarded but could not have prevented this lapse, whereas such good influence as I may have exerted on my students will continue to the third and fourth generations.

My strategic position at Ottawa kept me in contact with most of the Canadian research workers in the field of biology. For example, all applications for assisted research grants were passed to me for comment and recommendation. The number of national committees in which I had membership was legion. The numerous and long meetings were a weariness to the flesh, but my spirit was nourished by the wide acquaintance they brought.

One organizational appointment I received in my last year at Ottawa I was especially sorry to resign on moving west. That was the secretaryship of the Royal Society of Canada, a position of considerable influence and prestige. Though I held this only six months, it brought its share of interesting experiences. The sensitivity of French-Canadians to their rights as equal partners with English-Canadians had not reached its present intensity, but

was already clearly evident. Though practically all educated French-Canadians speak English fluently, I was careful to conduct in French all correspondence with French-speaking members of the society. Fortunately my own secretary in the Research Council could take and transcribe the simple French in which perforce I dictated these letters. But I was not prepared for the length to which one member went. At the usual time of the year I sent to all members the customary statement of fees due. One French-Canadian sent this back without the fee but with an indignant letter pointing out that the statement was headed "Royal Society of Canada" instead of "La Société Royale du Canada", and he could not be expected to understand or act upon it! To offset this, I must record another very different incident. Frère Marie-Victorin, director of the Montreal Botanical Gardens, just established by his efforts at a cost of over a million dollars plus years of botanical exploration and exchanges, telephoned me in great distress that he had received notice the gardens were to be taken over as a military training centre. That was early in 1940, when military needs were of course paramount, but I felt there must be other vacant spaces that could serve, without marching recruits over Professor Marie-Victorin's priceless plantings. After some thought, I decided to write Dr. Vachon, professor of chemistry in Laval University, whom I knew well as a long-time member of the National Research Council. He had just been appointed Coadjutor Bishop of Ottawa, and I counted on the well-known influence of the Catholic clergy in Quebec. I wrote him in French — quite needlessly, of course, as he had perfect command of English and was far above any petty sensitiveness. The next day I received this telegram

from him: "Will go to Montreal tomorrow and see about the botanical garden business." That was the end of it.

As seemed to have become usual in my experience, the decision to leave Ottawa and return to Edmonton was complicated by counter-proposals. In the summer of 1939, Dr. Royal Chapman, whom I had known in Minnesota days, decided to leave his position as director of the pineapple research station in Honolulu and as dean of the graduate school of the University of Hawaii, to return to the University of Minnesota as dean of its graduate school. The Pineapple Planters' Association, which supported the Honolulu station, asked him to find a successor as its director. He came to Ottawa to see if I were interested. Close questioning elicited the information that he was leaving Hawaii because he thought conditions there too "soft" for the best good of the developing characters of his growing family. That was not the kind of challenge my wife and I easily responded to, though we were attracted by the interest of this "crossroads of the Pacific" with its multiracial population.

A stronger counter-attraction came the following spring, just as we were on the point of moving to Edmonton. With tragic unexpectedness, Chapman had died only a few months after his return to Minnesota, and I was informed that the president of that university would invite me to fill the vacancy if I would indicate my willingness to accept. I had already informed President Kerr, of the University of Alberta, that I would return there, and though I had no doubt he would release me from the obligation if I so requested -- especially in view of the much larger salary attached to the Minnesota position -- I did not do so. My wife and I have

always been genuinely fond of Alberta, and we felt we were more needed there than in Minnesota. Moreover, Canada was at war and the United States was not, and we should have felt badly to desert our country then. So we headed west once more.

Chapter XI

HENRY MARSHALL TORY

Dr. H.M. Tory has already appeared quite often in these pages, and E.A. Corbett has written a substantial biography, "Henry Marshall Tory, Beloved Canadian" (Ryerson, 1954). It remains only to gather together a few recollections and impressions of the seventeen years I worked closely with him, and the further twelve years of continued friendship and frequent contact till his death in 1947.

The battle to establish the University of Alberta in Edmonton, and to make a faculty of agriculture part of it, had been won before my association with Tory began. The bitterness of the struggle is shown in this bit from one of R.B. Bennett's speeches in the Alberta Legislature: "The day will come when the outraged citizens of Alberta will tear down the university and cast it brick by brick into the North Saskatchewan River."*

*I am indebted to Hon. Mr. Justice H.H. Parlee for this quotation.

was the debate Tory had to face at a public meeting in Calgary to get the faculty of agriculture established at Edmonton rather than at a southern point, he told me he felt afterwards as though he had been beaten all over with clubs, and had to spend two days in bed recovering from his nervous exhaustion.

Tory had great respect for the fine arts, but was not personally gifted along these lines. The only music I ever knew him to make was the humming of Methodist revival hymns, which he did quite commonly in moments of abstraction. The mixed, and in some cases incongruous, architecture of the University of Alberta must be

laid in part at his door. That the Arts building, the best one constructed during his regime, is a pleasure to look at, is due more to the influence of certain staff members than to Tory himself. The noble edifice built for the National Research Council on Sussex Drive in Ottawa was inspired by Lord Willingdon, the Governor General. Tory told me that Prime Minister Mackenzie King had shown little interest in these laboratories until the Bill to authorize their construction was introduced in the House of Commons in 1928. The Prime Minister was surprised by the unanimously hearty support from all sides of the House, and immediately made the project his personal care. Tory had made only a modest proposal for the first unit of a series of plain brick buildings to be erected on a site adjoining the Experimental Farm. The Prime Minister now decided to make the building part of the plan for beautifying Sussex Drive, in which Lord Willingdon was cooperating with great interest. It was an expensive structure, built during the Great Depression, and Tory was falsely accused of gross extravagance! The accusation extended even to the waste paper basket in his office, which cost \$6.25, but was blown up to \$50 in acrimonious gossip which found its way both into Hansard and into the press.

Neither Lord Willingdon nor Mackenzie King were in office at the time of opening the laboratories on August 10, 1932. Lord Bessborough had succeeded the former and R.B. Bennett the latter. Mackenzie King attended the ceremony, and though he maintained outward aplomb, in my brief exchange of greetings with him his eyes betrayed his disappointment that the delays in construction caused by the financial depression had robbed him of the satisfaction

of presiding over the ceremony.

The depression also prevented any immediate expansion of our staff, and at the outset we shared part of the new building with a few other government agencies needing space, especially the Canadian Broadcasting Commission. Going up in the elevator one day, I found myself in company with Hector Charlesworth, chairman of this Commission, and a few visitors he was showing around. When they commented on the size and beauty of the building, he replied, "Of course, we do not have all of it. The Research Council has some space, too." When I told Tory of this incident, he laughed heartily.

All criticism of the size and cost of the Research Council's quarters has long since vanished. The building on Sussex Drive is still its headquarters, but has become a minor part of the total accommodation of the Council's activities. The value of its work has repaid all costs a hundred times over.

Tory was the reverse of extravagant by nature, but had still no mean notion of the trappings proper to exalted office. He provided spacious and well-appointed offices for himself both at the University of Alberta and at Ottawa, and in 1928 negotiated a salary of \$15,000 for his full-time service at Ottawa, a rate then in excess of that paid to deputy ministers. His successors in the Council presidency chose to move into a smaller room, intended as a library, adjoining the president's office, and to use the main office as a conference room. When C.J. Mackenzie, third president of the Council, visited me in the university president's office at Edmonton, a large room with oak-panelled walls and a beautiful Chinese rug covering the floor, I was not

surprised at his first remark, to the effect that Tory was running true to form when he planned that office.

In small things Tory was a curious mixture of closeness and openhandedness. When he moved to Ottawa in 1928, after having been honorary president of the Council for four years, to become a salaried employee in the same position, he charged his moving expenses to the Council. Yet when the rest of the Edmonton group moved in 1932, after being salaried employees of the Council for about the same period, he withheld this consideration, except in the case of a young Scot who, with the pertinacity of his race, won the concession by sheer importunity. On the other hand, at one of our Winnipeg meetings not long afterwards, when someone suggested having dinner at a restaurant noted for planked steaks, and someone else remarked that it might be a bit expensive, Tory's comment was: "If we can't eat where we want, when we want, what we want, we'll quit working for the Government." But we recognized his essential greatness, and forgave his occasional lapses into self-interest.

Some of his initial ideas in regard to the layout of the Edmonton campus were a source of embarrassment to his collaborators. The land was covered with poplar scrub, admittedly much better than no trees at all, and he wished to save as much as possible of this. He proposed a serpentine road connecting the north half of the campus, the site of the academic buildings, and the south half, where farm buildings were to be erected, using the scrub as a screen between the two. It was not a bad idea at the time, but

the farm buildings were destined soon to be moved farther afield, and the straight avenues with new plantings of better trees, to which he finally acceded, proved more practical as well as ornamental.

But his infectious enthusiasm was an unmixed blessing. Dean Rankin told us of his own first arrival at the university. Tory was showing him around the campus when they came upon a field of turnips. Tory climbed over the fence, pulled up a turnip, wiped it clean with his handkerchief, peeled and cut off a piece with his pocket knife, offered it to Rankin to sample, and asked him if it were not the best turnip he had ever tasted!

When Sir Isaac Newton was asked how he came to discover the law of gravitation, he replied, "By constantly thinking about it." That describes Tory's preoccupation with the University of Alberta. This led sometimes to embarrassing situations. Once he went upstairs to dress for a dinner engagement. After an unusual delay, Mrs. Tory decided to investigate, and found he had undressed, put on his pyjamas and got into bed, not to sleep, but to continue his thinking. During the First Great War, he felt it his duty to set an example by joining the university C.O.T.C. and turning out for parades. But he was less than an ideal recruit, for he had difficulty keeping his mind on the drill, with so many university problems crowding his thoughts.

Tory identified himself completely with any enterprise he undertook, and by his energy and drive usually dominated it. No one in the university ever thought of questioning his decisions, even if occasionally they had private reservations. This applied with almost equal force to the Board of Governors and even to the Provincial Government of the day. Only once, to my knowledge, did

a Premier of Alberta tell him he could not have his way. That time Premier Greenfield came to Tory's office in the university to tell him he could not go on with his plans to establish a faculty of medicine, as the province could not afford it. By a remarkable coincidence, Tory had received from the Rockefeller Foundation in that morning's mail a cheque for half a million dollars to help start the faculty. Tory waved it before the Premier, who got up without another word and never raised the question again.

Tory was by no means insensible of his dominance: indeed he appeared to take it for granted. On one occasion an Ottawa official, who did not recognize him, informed him that a certain thing was contrary to the regulations for material standards laid down by the National Research Council. Imagine his astonishment when Tory replied, "But I am the National Research Council." Though he was humorously paraphrasing the Grand Monarch, and did not expect to be taken literally, he was still expressing not a little of his real feeling.

Sometimes he carried this attitude into cooperative enterprises, such as associate committee projects shared by the Dominion Department of Agriculture. Naturally this provoked some jealousy and even hostility. Dr. J.M. MacEachran, who knew Tory intimately, having been provost of the University of Alberta during the whole of Tory's 20-year regime there, in reviewing Corbett's biography, suggested that the sub-title, "Beloved Canadian," might better have read, "Great Canadian," since the adjective "beloved" was not universally applicable. The initiation of great projects always stirs up some opposition, and a man of Tory's drive was bound to ride roughshod over those who stood in the way of progress.

Tory's desire to be undisputed master in his own house explains in part why the legislation he influenced provided for the appointment of the presidents of the University of Alberta and of the National Research Council by the governments of the day, rather than by the boards over which they presided. Unfortunately, in the second case he was "hoist by his own petard," when he found himself serving a Prime Minister who had old scores to settle.

That unhappy experience has been sufficiently described by Corbett. An ironical touch was that Mackenzie King, who was well-disposed towards Tory, replaced R.B. Bennett as Prime Minister only a few months later. Tory had the faculty of inspiring loyalty in his staff -- witness my own repeated decisions to stay with him -- and we all felt sad that his great service to the National Research Council should have had less than a brilliant finale. His abrupt dismissal clouded not only his own end but also General A.G.L. McNaughton's beginning with the Council. Tory and McNaughton had appeared to be close friends, and Tory resented the latter's failure to give him any hint of the impending succession, and that he left it to his wife to inform Mrs. Tory of the event after it had taken place.

McNaughton did his best to mend the breach, and readily agreed to the proposal that we should invite friends to contribute to a portrait of Tory to be hung in the Council's library. To me he said, "You will be the persona designata to see the thing through." The response was prompt and generous. We had funds not only to cover a good portrait but also a special lamp to light it after it was hung, and a substantial collection of books chosen by Tory,

also a booklet containing a reproduction of the portrait, the presentation address by his lifelong friend, Dr. Frank D. Adams, and Dr. Tory's reply.

The presentation was a gala occasion, though almost to the last minute Tory did not relish the idea of appearing to be patronized by McNaughton, and asked me to arrange if possible to have Dr. Walter Murray preside. But General McNaughton presided with tact and grace, and the affair passed off^{very}/harmoniously. Thereafter Dr. Tory seemed reconciled. He was touchingly grateful to his friends. We collected the letters of congratulations he received, and had them bound in a beautiful red Morocco leather cover with appropriate lettering, also had a large framed photograph of the portrait prepared for him and Mrs. Tory. On January 3, 1937, he wrote me:

"My dear Robert, This is just a wee note to thank you and Mrs. Newton for all the trouble you have taken with regard to the portrait and the copy which Mrs. Newton brought to Mrs. Tory on New Year's Day.

"I have grave doubts whether the portrait would have been completed but for you and I am accordingly grateful.

"We are greatly pleased with the copy which hangs over the library mantel. Come in and out when you get a chance.

"Mrs. Tory joins in love to both of you."

As may be seen in Corbett's biography, Tory's career was far from ended. Carleton College (later Carleton University) was still to come. It is noteworthy that both ~~Carleton College~~ the Khaki University and Carleton College were born of war. Tory, a born educator, always on the lookout for opportunities to promote the

training of youth, seized upon the circumstance of large numbers of young men and women displaced from their usual homes and occupations, to interest them in using their spare time to improve their preparation for later service. He used the facilities at hand, however inadequate, and recruited staff wherever he could find qualified individuals willing to serve on a part-time basis. He kindled fires of enthusiasm in both staff and students, in fact, in his associates in every project he undertook.

Russian Academician Nikolai Vavilov is the only man I have ever met who claimed that he was never tired. The one time he was known to rest during the day was on a plane in weather too rough to work ~~at~~ his notes. While the other passengers fastened their seat-belts and trembled, he settled back and fell asleep. Lately the actor-producer Peter Ustinov, when asked what he did for relaxation, replied that he found relaxation too exhausting. Such men inevitably come to mind in thinking of Dr. Tory. Though I have seen him dog-tired at times, a good night's sleep and the dynamo was whirring again.

Between my wife and Dr. Tory there was real affection, easily generated by their warm natures and surprisingly similar outlook on many things. It began in our first year in Edmonton, where Dr. Tory was the only person who had known both her parents, especially her mother, who was one of his classmates in McGill Arts '90. Hanging on the wall of the Tory library was a copy of the same graduating class picture which had hung in my wife's girlhood home. At a reception in the president's house on the campus, Dr. Tory came over to my wife, exclaiming, "I have just discovered who your parents were!" He continued generously,

before the assembled company, "It was fortunate for me that women were not allowed to take the mathematics option in those days, or your mother would have taken my medal."

In later years my wife and Dr. Tory exchanged occasional letters. His sometimes revealed much of the philosophy and motivation of his life. On April 8, 1933, he wrote:

"I have now reached the age when the friends and associates whom I met in the happy days of youth are silently slipping away into the Great Unknown. In spite of all that has happened I still take a cheerful view of life, believing that I live in an ordered universe, intelligently conducted, even though I understand so little of it all. I have always felt that the story of Lot's wife was a parable of what happens to all who look back and indulge in regrets, instead of looking forward. If the backward lookers are not turned into pillars of salt, they certainly become the Dumb Doras of Society. I have tried for myself, and to encourage others, to keep my face toward the morning where the sun is always shining and the glory of the day is still before us, even though clouds and fog may sometimes obscure its beauty.

"... I remember your father well. He was a devoted man who did his duty well. I am sure you have nothing but rejoicing in the memory of him."

The following is from his letter of January 21, 1936:

"... I never really sought any one of the positions I have occupied. I always believed that if one started with a proper motive to do worthwhile things the real road to success and personal satisfaction was to follow the Scriptural injunction, 'Whatsoever

thy hand findeth to do, do it with thy might.'

"When I was called back to McGill after graduation I was taken wholly by surprise. I soon found in teaching the approach to life my mind craved. My work at McGill led to British Columbia and Alberta in an automatic sort of way, by call not by seeking. In the same way to the Army and finally to the National Research Council.

"I have only found two types of mind where sincere and honest work is not appreciated: one, where there is an excess of the Odium Theologicum, and the other, where political prejudice is excessively present. Perhaps that is because in these two respects people are apt to become too emotional."

After Dr. Tory's enforced retirement from the National Research Council, ^{in 1935,} Mrs. Tory, vigorously seconded by my wife and me, ~~vigorously~~ urged upon him the importance of getting to work on his memoirs. He did so in a tentative sort of way, but writing was always a rather painful process for him. He much preferred speaking. Under the stimulus of an appreciative audience, and on any subject near to his heart — and that was true of practically every cause he espoused — his strong figure, palpable enthusiasm, and intense purpose, all reinforced by vigorous and forthright utterance, could scarcely fail to strike sparks in his listeners. Before starting his memoirs proper, he spent considerable time collecting and arranging his main addresses, which he hoped to publish as a separate volume.

When Mrs. Tory became critically ill in November, 1938, we kept in daily touch. He telephoned me to the office when she passed, on the morning of the 29th. I went right over, and stayed

with him that day as he made the needful arrangements. That Christmas my wife selected a beautiful poinsettia, which we placed at the head of her grave. The temperature was 20 degrees below zero Fahrenheit, and the plant froze instantly, without the slightest sign of wilting. It stayed that way for over six weeks during a prolonged cold spell, and Dr. Tory was deeply moved by this bright symbol of his wife's undying spirit.

After his wife's death, Dr. Tory attacked more seriously the task of writing his memoirs, saying to us, "I could never meet Annie if I don't finish them."

My wife never forgot to write him on the anniversary of Mrs. Tory's death, and on other occasions when the sense of loss might be especially keen. She usually enquired as to his progress in writing. On February 14, 1939, he replied from Daytona Beach, Florida:

"... I have sent back some work for Miss Clarke to type, so my book of addresses is nearly complete. It will be quite a big book.

"I am starting on the Reminiscences at once and hope to send Miss Clarke a couple of chapters this week for typing. I found Ryersons quite pleased to get both books for publication....

"I have sometimes felt that I did not speak openly often enough about her (Mrs. Tory). She was self contained and so was I, but our characters combined like two streams flowing together and forming a single stream. ..."

In due course he read to us not only the chapters mentioned in the foregoing letter, but succeeding chapters, covering altogether his family background and early life, the McGill years, McGill in British Columbia, the University of Alberta, and the National

Research Council. We had left Ottawa before the Carleton College era. But his purpose of publishing the memoirs and addresses as two books was not fulfilled. Corbett chose to prepare one comprehensive biography, based on the memoirs, addresses, and other papers made available by the family. Though he did incorporate substantial excerpts from Dr. Tory's writings, one cannot escape some regret~~x~~ that these were not published in full. True, Dr. Tory had not a ready pen or any gift for felicitous phrasing. His speech was quite straightforward, like his character. He wrote much as he spoke, but when he spoke his words were suffused with his eager spirit and winged with sincerity and manifest strength of purpose. His spoken words were therefore more effective than his writing, though this was by no means ineffective, as may be seen in Corbett's quotations and in those given here.

On November 27, 1939, the eve of the first anniversary of his wife's death, he wrote to my wife:

"... It was exceedingly kind of you to write as you did. I need hardly say that I deeply appreciate the kindness which you and Robert have always shown me. ... You both always seem to belong to me in a special way. ...

"Perhaps I have a more intensive belief in the value of building soundly on intellectual institutions than some of those occupying similar positions during my time, and as a consequence have hated sham and pretence. ... I have never quarreled with men of honest purpose. ...

"Then for over forty-four years any good quality I possessed was reinforced by Mrs. Tory. She hated sham of any kind and by her very nature always called out the best in those with

w whom she had to do. She was strong in her goodness and honesty of mind. "

After we returned to Edmonton in 1940, our personal contacts were less frequent, but I saw him when I visited Ottawa for quarterly meetings of the Research Council and the Board of Trustees of the National Gallery, and my wife continued her written exchanges. On November 22, 1941, he wrote her:

"Dear Emma, Thank you from the bottom of my heart for your kind letters, especially the last one. November 29 is a trying date. ...

"After I came home (from Nova Scotia) I visited the refugee camps in Quebec to see if anything in an educational way could be done, and have been devoting some time to securing books for them. ..."

On April 14, 1942, his letter showed him becoming more deeply involved in wartime educational work. The key to his activities is found in this significant observation:

"The longer I live the more confirmed is my belief that it is in giving of ourselves with cheerfulness of spirit to worthwhile things that happiness is to be found. ...

"I have been interesting myself in three things: The League of Nations, ^{Society,} The Health League, of which I am president, and the effort to establish a junior college in Ottawa. ... Ottawa is being crowded with young people in very unfavourable conditions of life, and we hope to do something for those who desire help. ...

"I think we have cause for great anxiety for the near future of the war effort. ... What the 'United Nations' want is more

unity, more intensity, more willingness to sacrifice. We are still on this continent thinking of contracts and money values as winning the war."

Twice in Dr. Tory's life, war plus his spirit of service had catapulted him into major educational projects: the Khaki University, and now Carleton College. The second involvement was confirmed in his letter of September 6, 1942:

"... When we reached the point whether to go on or not, it became clear that if it was not to fail before it got started I would be compelled to take hold. ... I refused to do it on any salary basis -- only as my gift to the enterprise of my time and experience. So there I am again at work I like but somewhat against my inclination.

"My love to Robert. Let this letter answer his also. I shall be delighted to see him when he comes to Ottawa."

"December 25, 1942. Dear Robert and Emma, It is Christmas day ... and I am alone in the library writing a few letters. I have just finished one to my brother James and this comes next. ... I was greatly moved listening to the Empire broadcast. Certainly it is a remarkable thing that in spite of all her faults the whole world finds in Britain a sort of home to which in adversity they all turn. ... It certainly suggests great days to come, once the war is won, if we can maintain the emotional sense of values we now possess. ... Can we succeed in carrying over to the hearts and minds of the next generation? This can only be accomplished by intensive educational effort, from the common school to the university."

The following is especially interesting from a man who had

throughout his life placed such emphasis on the advancement of science:

"December 12, 1943. Dear Emma, ... You will be interested to know that while I failed for want of a suitable teacher to get the course I wanted on musical appreciation, I did succeed with the fine arts (painting, sculpture, etc.). ... It is going splendidly, with twelve real students and 50 auditors from the city. I hope next year to get the music started. I am strong to make the college a centre of general culture rather than a centre of science. ..."

On November 18, 1946, less than three months before his passing, he wrote his last letter to my wife:

"My dear Emma, Thank you for your kind letter of remembrance. ... It is eight years since she left me. ... In my quiet moments she is always in my mind. Memories become more precious with the passing years. The end always comes at last, and one can only keep doing while waiting."

Then follows a short account of his "doings", in which sadness gives place to enthusiasm and optimism over the growing success of Carleton College — the last of the great foundations which are his living monument.

The afternoon of his funeral in Ottawa, at the same hour, we held a memorial service in Convocation Hall, University of Alberta. Dr. R.K. Gordon, professor of English, who had known Dr. and Mrs. Tory almost from the beginning of their Alberta experience, spoke for all of us when he paid warm tribute to both of them. I read the prayers Dr. Tory had introduced to the university services some forty years earlier, and a few verses of Scripture, ending

with his favourite text, "Speak unto the children/^{of Israel}that they go forward."

In my report to Convocation the following May I said:
"Dr. Tory found this campus empty of all save prairie grass and poplar scrub. He left it studded with substantial buildings, manned by devoted scholars, thronged by eager students. His ambition to establish here such a tradition of research and inquiry after truth as could not easily be broken has been amply fulfilled. ... During the session just ended, 138 post-graduate students have been at work in this university, each doing his bit to push back the bounds of knowledge."

Chapter XII

UNIVERSITY OF ALBERTA II

As the second dean of the faculty of agriculture I followed E.A. Howes, who had held that office for 25 years. He belonged to the old school, trained at the Ontario Agricultural College when the emphasis was more upon practical farming methods than upon the sciences underlying plant and animal production. He fitted well into the pioneering stage of western agriculture, especially as he had an extraordinary gift for popularity and was a pleasing speaker.

Things changed rapidly, even during my earlier period in the faculty of agriculture (1919-32), when the younger staff members worked for a more scientific approach both in the curriculum and in the program of investigations. While Dean Howes could not give active guidance to this movement, he did go along with it readily, and his abundant commonsense was a steadying influence. By the time I took over in 1940, the scientific outlook was well established, and my background and training fitted easily into the new situation. We were welcomed back heartily by our old colleagues and friends, and my one-year tenure of the office of dean passed happily and fruitfully, with no need for me to initiate any radical changes.

The professor of field crops had moved to another institution that spring, and I took over my former position in that department in addition to the deanship. I also continued the course in public speaking which Dean Howes had conducted for years. Indeed my main activity that year was public speaking! It seemed that every organization in the province wanted to try the new broom, and at the height of the season I found myself speaking three or four

times a week. Perhaps it was just as well my tenure of office was short, since at that rate I was bound to use up my stock of ideas pretty fast!

It is a tribute to Premier William Aberhart's broadmindedness that he apparently made no objection to any of the things I said in public, though some of them were not in line with his professed theories. In one of my speeches I was openly critical of the refusal of a group of provincial premiers, including himself, to discuss the Rowell-Sirois Report.

But if the Premier took little notice of my independent line, some others took more. I was visited by Mr. D.M. Duggan, a man active in provincial politics, who proposed that I should lead a combined opposition to the Aberhart government. Though surprised at this proposal, I promised to consider it, and on my next trip east consulted Premier John Bracken, of Manitoba, and Dr. Walter Murray, president emeritus of the University of Saskatchewan, who was still active in public affairs. Bracken encouraged the idea, on the basis of his own experience, but Murray cautioned against entering politics unless I were financially independent. Premier Aberhart himself decided the issue by inviting me to become president of the University of Alberta!

Apparently what first brought me to the Premier's favourable attention was a letter I wrote to the Edmonton Journal, protesting the School Board's persecution, and suspension from classes, of children who refused to share in the daily flag-saluting ceremony, because they belonged to a religious sect which considered this a form of idolatry. Mr. Aberhart had been pestered by well-meaning "patriots" to support the school boards by legislation

making the saluting compulsory, but he himself was an experienced and highly successful school-teacher, and undoubtedly saw the fundamental conflict between the children's obedience to their parents and to school board regulations. I quote from my letter: "Loyalty begins in the home. Experience of the benignant attitude of ~~the~~ parents begets in the child first confidence, then affection, and finally, as a sense of mutual responsibility develops, loyalty. This gradually extends to a wider circle of acquaintance till it comprehends the state and its institutions." I suggested, therefore, that insistence on the children's saluting, when this meant disobeying their parents, undermined the real basis of loyalty and patriotism.

My letter raised a storm of correspondence pro and con. Oddly enough, the strongest pro letters were addressed to me personally, while all the con letters went to the newspaper. A representative of the Daughters of the Empire demanded my dismissal from the university, a state institution. I suppose this naive, totalitarian attitude, that nobody should be allowed to think differently from me, will always be with us, since many people find it easier to "emote" than to think.

In the spring of 1941 the committee on honorary degrees, including the Chancellor, the Chairman of the Board, and the President, proposed to the university Senate that an honorary doctorate be conferred on Premier Aberhart, who had been elected to a second ~~term~~ of office. Such proposals had always been accepted as a matter of course, and no precautions were taken to keep this one secret till approved. Indeed, it was scarcely practicable to do so, since the Senate, the final authority on matters academic,

could not meet till the day before Convocation, when there had been time to prepare pass-lists and lists of all prizes and scholarship winners for approval. Obviously the prospective recipients of honorary degrees had to be invited earlier to be present. Unfortunately there was still much prejudice against Social Credit, and the Association of Teaching Staff discussed the matter rather hotly at its year-end meeting. It had just been announced that the salary cuts made during the financial depression, which bore hardly on many members — the original salary scale itself being then quite inadequate — were to be partially restored in the next session. Norman Pitcher, professor of mining engineering, remarked with characteristic humour that, "Apparently the Board hopes to restore the salary cuts by degrees!" Divided opinion at that meeting, which had no jurisdiction in the matter, foreshadowed accurately what happened a few days later in the Senate, where the proposal was defeated by one vote. The disagreeable publicity attending the affair may have hastened President Kerr's retirement, though he had passed the usual retirement age of 65 and was not in robust health.

Premier Aberhart would have been more than human not to feel annoyed at the turn of events. He eyed the university askance, and felt that a constitution which allowed the Senate to flout the wishes of the Board needed revision. He approached cautiously the selection of a new president.

Soon we met at a function at the Olds School of Agriculture, and he apparently decided to get better acquainted with the writer of that letter on flag saluting. During a 20-minute period, while we happened to be alone waiting for dinner to be called, he

questioned me closely as to my ideas of a university, and especially about the public responsibility of the staff. I had noticed at Ottawa that the need for caution in public utterance to avoid statements at variance with government policy tended to cramp and restrain expression, and in the long run to discourage constructive thinking about public questions. I had appreciated the greater freedom of a university, and had thought a good deal about the responsibility associated with this privilege. Consequently I was nothing loath to give Mr. Abernart my view that the "ivory tower" concept of a university was outmoded, and that the staff members owed it to the community to give positive leadership by stating publicly their opinion on any question on which they had special knowledge by reason of their particular line of study or experience. I did not of course subscribe to the view that prominence, or even pre-eminence, in one field qualified an individual to make authoritative judgments in any other field!

Apparently this attitude appealed to the Premier, for not long afterwards he invited me to his office where, together with Dr. G. Fred McNally, Deputy Minister of Education, we had a talk about university affairs. The Premier asked whether, if I were president, I would be prepared to stand up to the staff and the Senate, and insist on action I believed to be right. I pointed out that this could be done only within the constitutional limits established by the University Act. He then stated his intention to set up a survey committee to go into all aspects of university organization and work, and expected some revision of the Act might result from its report. He asked whether I would be satisfied to take the presidency on an acting basis, pending such report. To

this I agreed, and a day or two later I was invited to appear before the whole Cabinet, which then approved the necessary Order in Council.

One of the advantages of the survey committee to me was the opportunity to get well acquainted with a group of individuals with whom I was to be closely associated for the next nine years. Mr. H.H. Parlee, K.C., had been appointed chairman of the Board of Governors the year before, and now became chairman of the survey committee. As a leading corporation counsel in Alberta he was an exceedingly busy man, and the time he gave so unstintingly to the university meant real financial sacrifice. I felt relieved when he was appointed to the Alberta Supreme Court in 1943, and no longer suffered this loss of income. In the survey of 1941-42, he took as his personal care the part relating to the University Act. In preparation for that and for the survey as a whole he read prodigiously in the published reports of similar surveys by other educational institutions. He was a striking individual, brisk and stimulating to meet, forceful in his utterance. Premier Mahning said to me once, "I always get a bang out of the Chairman." He was impatient of time-wasting, and his emphatic "Thank you" had a finality which silenced loquacious witnesses at survey hearings.

The committee served without remuneration, and Mr. F.G. Winspear, head of a prominent firm of chartered accountants, also gave his time to it as a public-spirited gift. He was especially helpful in analysing the financial history and probable future needs of the university. He had already helped the university by giving lecture courses in the School of Commerce, and later played a prominent part in reorganizing that school, of which he

~~was~~ acted as administrative head in 1954-55. The university conferred an honorary doctorate on him in 1951. As an experienced business man, his practical viewpoint was an important asset in our survey committee deliberations.

The other four members of the committee, including myself, were salaried individuals and, while they did much extra work as a result of this assignment, they suffered no loss of income. The genial G. Fred McNally was another loyal prop to me during my whole presidency. Under the revised University Act the Deputy Minister of Education became one of the statutory members of the university Board. When Dr. McNally retired as Deputy he was elected Chancellor of the university, which office also carried membership in the Board. He made an excellent chairman of the Senate, and indeed of any body over which he presided. "Smiling Fred", as he was sometimes called, had a gift for combining firmness with smoothness of operation. Premier Aberhart once compared him with another senior official: McNally, he said, could refuse a request and send people away happy, whereas the other official sent them away mad! Another gift, that of remembering the names of countless acquaintances and their families, extended McNally's usefulness and popularity. Evidently possessed also of a sound constitution, he has continued public activities of one kind or another right up to the present (1963). "The imperishable Dr. McNally" he was called in a letter to^{me} from the current president of the university.

John W. Barnett, founder and executive secretary of the Alberta Teachers' Association, was ever mindful of the interests of his organization. He was profoundly suspicious of the university

faculty of Arts and Science, under whose aegis the College of Education then functioned. To him this faculty was a road-block of conservatism in the way of training teachers in "progressive" educational methods. It is fair to add that the suspicions were mutual. The older members of the faculty especially distrusted the movement to make learning a game, and to place the emphasis on adjustment to living rather than on acquiring traditional knowledge. Mr. Parlee, the chairman of our survey committee, though he was certainly progressive by nature, always listening sympathetically to new ideas when supported by logical arguments, still shared some of this suspicion. He remarked to me one day that we in Canada were too prone to take over ideas from the United States just when the latter country was about ready to discard them. As in many progressive movements, the swing to progressive education probably went too far, and in time began to swing back again. The advent of the Sputnik, and acquaintance with the Russian system of education that brought it into being, jolted even the most ardent apostles of progressive education into the realization that there is no substitute for plain work and specific knowledge. But that was far in the future. Our survey committee was able to hammer out reasonable compromises suited to the thought of our day, and in the end Mr. Barnett became not only reconciled but enthusiastic in his support of the university. He died in the service of his beloved ATA, and the university/him ^{awarded} an honorary doctorate posthumously, the only such instance in its history.

The sixth member of our survey committee, Dr. H.C. Newland, Supervisor of Education in the provincial department, was definitely radical in his outlook, both in politics and education. He and

Mr. Barnett usually teamed up in any argument. On one point they wrote a minority report. The whole committee expressed the view that persons with trained minds, such as members of a university staff, should be encouraged in, rather than restrained from, exercising their full rights of citizenship, and that they should have complete freedom in political matters, unless it appeared in particular instances that the activities of any member of the staff were prejudicial to the university. Newland and Barnett wanted to go farther and amend the University Act to give a statutory guarantee of this right.

Only one case of this sort came up during my regime. The staff member concerned was an avowed Communist, a fact that caused the university some embarrassment during the early part of World War II, when that party was still an illegal organization. However, the Board took no action beyond warning him to be cautious in his utterances, after complaints had been received from students that he was using his classroom lectures in a totally different subject as a forum for his political ideas. Later he was put on probation for serious infraction of university regulations unrelated to politics. The last straw came when a large group of students signed a written complaint that he was again mixing politics with his lectures. After a hearing before the full Board he was given three months notice of dismissal. Naturally he and his sympathizers did their best to make it appear that the university was trying to control the political views of its staff members.

Our survey committee by-passed the difficulty, real or fancied, of conservatism in the Faculty of Arts, by recommending that the College of Education be raised to the status of an independent

faculty. We recommended that it be housed with the Edmonton Normal School, which had a commodious and not fully occupied structure on the university campus; also that the Faculty of Education and the Normal Schools be treated as integral units in one system of teacher training. This recommendation had far-reaching and highly beneficial effects. It gave a great lift to the morale of the school teachers, that at last they were recognized as a full-fledged profession, with a university faculty of their own. It led within a few years to the complete amalgamation of the faculty and the normal schools. The college, and at first the faculty, had been responsible only for the education of high school teachers, leaving the preparation of elementary school teachers to the normal schools. Now all teacher education was taken over by the university, with an advisory board representing the department, the university, and the teachers' association. Elementary school teaching was properly recognized as of no less importance than secondary school teaching.

This final amalgamation followed upon recommendations of the Alberta Post-War Reconstruction Committee, set up by the Provincial Government early in 1943. Some of the members of our university survey committee graduated to the reconstruction group's Subcommittee on Education, of which I became chairman. Another movement started by the survey committee, and brought to full fruition after further canvassing by the reconstruction committee, was the establishment of a junior college in Calgary. Mount Royal College, a private institution, had been doing junior college work since 1931, but Calgary had never forgotten its disappointment in not getting the university.

Mr. Justice Farlee (as he had^{just}/become in 1943) and I visited Calgary to inspect the facilities of the Normal School and the Institute of Technology, and concluded they were adequate for a beginning at least. We attended a luncheon of representative citizens organized by Fred E. Osborne at the Ranchmen's Club. Mr. Osborne had been a very effective member of the University Board for several years. At that luncheon we pledged that the junior college was only a beginning, and would be expected to grow to a four-year institution as quickly as student attendance and other circumstances warranted; also that it would be known from the outset as the "University of Alberta in Calgary" -- not to be referred to as ~~"OUR SOUTHERN BRANCH"~~ "our southern branch".

The purpose of the junior^{college}/was not, of course, to placate Calgary's amour propre. That would be only an incidental benefit. It seemed to the survey committee and to the reconstruction committee desirable to make the fullest possible use of existing facilities, thus relieving the pressure on university accommodation and lightening the burden of new building requirements. Both committees foresaw the rush of new students after the war. There were many temporary buildings on the campus of the Calgary Normal School and Institute of Technology, erected for the armed forces, which would be vacated at the end of the war and which could be used by the university until the need for new buildings could be assessed and filled. A second reason was that the cost of board and lodging being the largest item in a student's university expenses, a disproportionate number of Edmonton students were getting the benefit of a university education because of the economic advantage of living at home. Calgary was a population

centre of about the same size, and deserved similar consideration. We expected student registration on the Edmonton campus to rise above 5000 soon after the war, and thought the time ripe to begin some decentralization. This view was bolstered not long afterwards by the conclusion of a British Universities Conference, that a student body of about 5000 was the optimum size. A smaller institution could not afford the elaborate equipment required for first-class scientific training, while a larger one was in danger of being forced into mass-production methods inimical to the close contact between master and student which is so desirable. The British conference recommended that Oxford and Cambridge, with their college and tutorial systems, should be allowed to rise to 6000 each, but that when provincial universities reached 5000, new institutions should be started to take care of any excess. Until recently a sincere if not entirely successful effort to maintain these standards has been made in Britain, where eight new universities have been founded since the second world war. But the latest, the University of Essex, founded in 1961, is planning on 10,000 students. And on this continent, where the pressure of student numbers has been even greater, it would appear that the sky is the limit. At the time of our survey, however, we still cherished more conservative notions.

The original Alberta University Act provided for only one degree-granting institution, and we thought it wise to keep things that way. There would thus be one governing body coordinating higher education in the province -- one Board appealing to the provincial government for funds and distributing these among different campuses according to need. The Board had always had

regional representation, and the importance of giving adequate voice in its membership to the locale of a university campus was recognized and intended to be maintained. Things seemed to develop happily enough along these lines for a good while, but lately there has been a recrudescence of Calgary's demand for its own university, completely independent of any other institution. As population increases the arguments in favour of local autonomy become stronger. Not least among these arguments is that civic pride could then be harnessed to the support of the institution. Proponents of independence can also point to England's experience, where the long-standing system of starting new institutions as university colleges affiliated to London University has been abandoned in favour of complete autonomy from the outset.

The defect in the university's constitution, which had caused the mix-up over Premier Aberhart's proposed honorary degree and precipitated the survey, was cured by changes in the University Act transferring to the General Faculty Council responsibility for all academic matters, including pass-lists and prizes. The awarding of honorary degrees was still reserved to the Senate, but this body, being relieved of the duty of approving pass-lists and prizes, was no longer under the necessity of meeting a day or two before Convocation, but could meet instead at any time convenient to itself, well in advance of Convocation, thus leaving plenty of time to consider such awards privately and still notify recipients in good time.

Another action of the survey committee was to secure from deans and heads of departments confidential reports on all members of the teaching staff. Two or three who had been on the

staff many years were so ineffective that they had become known throughout the province through the adverse comments of their students. Premier Aberhart, ~~and~~ experienced school administrator, told me practically in so many words that we could not expect general improvement in our salary scale while carrying free loaders of this description. This was serious, as university salaries had never even approached adequacy. The government's point of view was understandable. The wartime boom had not yet taken effect, and the province's economy had only partially recovered from the great depression of the thirties. Dr. R.W. Boyle, professor of physics and first dean of the faculty of Applied Science, who followed Dr. Tory to the National Research Laboratories in Ottawa, once made an amusing but revealing comment on the university salary situation. "In good times," he said, "my business friends over town call me 'You poor simp', but in bad times it's 'You damn grafter!'"

The administrative heads, in their confidential reports, recommended the very weak members for early retirement. When I asked them why they had not done this long ago, they replied that they had not been consulted in the appointment of these individuals, nor asked for their opinion on their success. True enough, in the early days of practically all universities, the president had taken chief, or even sole, responsibility for selecting the staff. This obviously had some drawbacks. Anyway, the mere growth in size of the institutions was making it impracticable for the president to give proper consideration to so many cases. One of my first acts was to establish a system of public announcements of all vacancies, with selection committees to sift the replies

and make recommendations to the president; also to require annual reports on the progress of staff members as a supplement to departmental estimates, with a specific recommendation in each case as to advancement or otherwise. New appointments were put on a term basis, subject to indefinite extension on favourable report. In this way I hoped to avoid any repetition of the heart-breaking experience of having to terminate the employment of persons who had been a long time on the staff. The new system did not save me from occasional errors of judgment, but I tried to correct my mistakes as I went along rather than leave them as an inheritance to my successors.

Other recommendations of the survey committee included a few respecting students and alumni. The committee felt that a more systematic effort should be made to inspire students with loyalty and a sense of responsibility towards the university, so that they might go out as crusaders for their alma mater. The University Act was amended to make the president of the Students' Union a statutory member of the university Senate, and the president and vice-president of the Alumni Association statutory members of both the Board of Governors and the Senate. It was hoped in this way to develop in students and alumni an active interest in the problems and government of the university, also to ensure consideration of the student viewpoint in the deliberations of governing bodies. Acting on another recommendation, the Board appointed a full-time alumni secretary, and underwrote the cost of publishing the alumni quarterly, originally called "The Trail," now re-named "The New Trail," since it was to be a joint organ of the university and the alumni.

The New Trail was a prime factor in pulling the alumni together. The immediate success of the new quarterly was due chiefly to F.M. Salter, then assistant professor of English, who volunteered to take the editorship. This generous act was characteristic of Salter, one of the most helpful and stimulating members of the university. The fresh originality of his own writing, and his imaginative selection of contributors, provoked an enthusiastic response among the alumni. His originality showed, too, in the set-up of the periodical. No prosaic "Table of Contents" for him, but "Blazes" were the reader's guide through the Trail. Once, in a paper to the Royal Society of Canada, he voiced his disapproval of stuffy teaching to which he had been exposed, in the succinct statement, "We parsed our way through Shakespeare."

Salter wanted to use in the masthead of The New Trail the motto Quaecumque bonae famae, but I objected that it might deflect attention from the university's incomparable motto, Quaecumque vera, taken from the same verse of Scripture. Later I regretted having repressed Salter's initiative. Moreover, such is the Biblical illiteracy of this generation, resulting from the rigorous exclusion of the Bible from our public schools, few persons might have recognized the origin or significance of either of these quotations. The president of the Students' Union, at valedictory exercises one spring, directed the attention of his fellow graduands to the university motto, and suggested they read the whole verse. "You will find it," he said, "in the back of your students' telephone book." ~~Doubtless this was to them a more familiar reference than the Bible!~~

Quaecumque vera had been selected as the university motto by

W.H. Alexander, first professor of classics, in consultation with President Tory. Alexander and J.M. MacEachran, first professor of philosophy and provost of the university, later incorporated it in the university grace, of which one line reads, Quaecumque vera constantius sequamur. The motto has been treasured by all thoughtful members of the university, and much admired by other institutions. After Dr. Tory in advanced years became president of Carleton College, his last foundation, his colleagues there persuaded him, against his own better judgment, to adopt the same motto for that institution. Their argument was that it would serve as a link between his two chief educational children. Our Alberta Board felt this duplication unwise, within Canada at least, but decided to say nothing about it while Dr. Tory lived. After his passing, we requested its discontinuance by Carleton College, and that institution courteously complied.

Another of Salter's notable contributions was the launching of "The Friends of the University." When I became president in 1941 and found how great was the need of supporting various activities for which no provision was made in the budget, I spoke to a number of people about the desirability of setting up a voluntary organization~~x~~ of friends who were prepared to contribute small sums annually. I looked upon this as a method not only of getting useful aggregate support but also of getting more people to take an active interest in the university. Salter was the individual who took up the idea enthusiastically enough to do something about it. At an alumni dinner held in the Masonic Temple January 30, 1943, he put forward the proposal, supported by such a rousing speech that the organization was formed then

and there. With her usual spontaneity, my wife contributed \$5 on the spot, and her example was immediately followed by many others. Salter's systematic boosting of the "Friends" in the pages of *The New Trail* for several years, is no small part of the reason that the organization still flourishes, replete with good works. Just one example of these is the H.M. Tory Memorial Lectures given annually, this year (1963) by the renowned Professor C. Northcote Parkinson.

The acuteness of the university's financial need when the "Friends" came into being may be seen in a graph of its annual grant from the province. Through the depression years this dropped from \$590,000 in 1931 to \$380,000 in 1934. Then came a gradual increase to \$450,000 in ~~1934~~ 1941, when I took over. Better times, and greater interest in the university stirred by the survey and reconstruction committees, brought more liberal government support. Actually the annual grant increased tenfold during my nine-year regime. But needs ^{seemed} ~~seem~~ to multiply and increase even faster! Fortunately the Federal Government lent a hand in supporting the expense of our "battle of the bulge" — the crowding-in of post-war students, mostly returned soldiers. It might be added that there has been no subsequent let-up in the skyward march of the university budget. President Johns reported to the spring Convocation, 1963, that the capital budget for building purposes this year was over \$16,500,000, and the operating budget nearly \$23,000,000. The initiation of a junior college in Calgary proved, as we expected, only the first step in a program of decentralization. Another college has been established at Lethbridge, and others are projected in Grande Prairie, Red Deer,

and Medicine Hat.

One organization housed in the university that suffered especially during the depression was the Research Council of Alberta. Dr. Tory, as we have seen, was an indefatigable proponent of scientific research. It is not surprising that Alberta, under his prodding, led the other provinces in establishing a provincial research body. In 1919 this was set up as a research committee, which merged into the Council in 1921. From the outset, its membership included representatives of the Provincial Government and the University, as well as members at large. The president of the university was named Director of Research, and a technical advisory committee was set up, including the heads of the science departments of the university. The headquarters, offices, and laboratories of the Council were in the university. The Council carried on research through its own staff and by subsidizing members of the university instructional staff to carry out projects important to the industrial development of the province, especially those concerning coals, bituminous sands, road materials, and geological surveys.

All went well till the great depression struck, when the U.F.A. provincial government of the day felt unable to continue its support of the Council. Dr. R.C. Wallace, who had succeeded Dr. Tory as president of the university, managed to carry along a bare nucleus of the council staff, treating these in effect as a department of the university. Dr. W.A.R. Kerr, third president, continued the same policy. That was the situation when I took office in 1941. The Social Credit government then in power knew little of the history of the Council or of its aims and objects. Fortunately

our survey committee was able to bring these matters effectively to its attention. Renewed interest and support has made possible uninterrupted progress since that time.

I was the last president ~~XXXXXX~~ of the university to carry the post of director of research as a sideline. When I retired from the presidency in 1950, the government asked me to stay on as director of the Council, and I agreed to do this on a half-time basis. It soon became clear to me that the growth of the Council's staff and program justified, indeed required, a full-time director. I recommended the appointment of Dr. N.H. Grace, who had been a highly valued member of my staff in the National Research Laboratories. He took office the following year, and not long afterwards the Council moved into a commodious and well-equipped building of its own, on the university campus. University staff members have continued to cooperate in the work of the Council.

Another victim of the great depression was the university's building program. The Medical Building, opened in 1921, was the last permanent building till after the Second Great War. In the ensuing twenty years the student population doubled and other activities increased proportionately. When the survey committee was set up, it found a grotesque situation, in which one class met regularly in a corridor, some laboratory courses had had to be dropped, the Dental Clinic was housed in a store-room, the Provincial Health Laboratory was so over-crowded as to constitute a public danger, and so on. To aggravate the situation, the Air Force had just taken over the three student residences and the Normal School building, this last recommended by the survey committee to become the home of the Faculty of Education. With some help from the

Federal Government we put up two fairly substantial wooden frame structures, one to house a cafeteria, and the other the machine shop, the printing department, and the department of political economy. A smaller temporary building housed the student infirmary.

Regular student registration fell off to some extent during the war, despite government policy to keep successful students at their studies at least as far as the bachelor's degree. Men students were required to combine military training with their regular studies, and women students did three hours a week of war service work. The university rink was converted into a drill hall, and qualified members of the staff gave unstintingly of their time and effort to service instruction. But the decline in regular student registration was more than offset by various courses for enlisted men who were sent to the university under the supervision of their own officers, the university being responsible only for the classroom instruction. Also, extra-mural correspondence and tutorial courses for men in the armed forces were given on a substantial scale by the university department of extension. Fortunately, this could be done without greatly increasing the pressure on university space. Courses in the faculties of Medicine, Dentistry, and Education were accelerated by extending the annual teaching period. This attempt to fill the ranks of doctors, dentists, and teachers depleted by enlistment laid heavy additional burdens on the teaching staff, who carried these for the most part without extra pay, but again it made no additional demands for space. The research laboratories, too, were diverted to war problems, all available space and facilities being fully used the year round.

Adequate accounts of the wartime activities of the university have already been published.* My brief references to them here

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"The University of Alberta in the War of 1939-45," by Professor L.G. Thomas, published by the University of Alberta in 1948.

"The History of the University of Alberta, 1908-1958," (chapter 6), by Professor John Macdonald, published by the University in 1958.

have been made chiefly to emphasize the problem of overcrowding caused by the long gap in building activity. The Medical Building was shaped like a giant letter E, but the three wings stood unfinished for more than a quarter century, their raw ends presenting the rather unsightly appearance that provoked Dean ^{Howes} to refer to the building as having a "Queen Anne front and a Mary Ann back." This was obviously the place to begin, both to redeem appearances and to get more space.

Dr. A.F.L. Lehmann, first professor of chemistry, maintained that it should have been called the Chemedical Building, since ~~the~~ one end of it was occupied by chemistry, biochemistry, and chemical engineering. The other end housed not only medicine, but also dentistry, and the provincial laboratory of public health. These, together with pharmacy, which had been stuffed into a corner of the Arts Building, fairly exploded into the space made available by the new wings of the Medical Building. Further relief came with the construction of a building adjacent to the University Hospital for the Institute of Public Health, as the provincial laboratory was now to be called. The professor of bacteriology had always been the director of the public health laboratory, and he now moved both the laboratory and his department into the institute building.

The students undertook as a war memorial project the construction of a Students' Union building, borrowing the money from the

Provincial Government and pledging themselves to retire the debt by paying extra fees over a period of years. The University Board had of course to make itself responsible for the fulfilment of this contract, but no difficulty of any kind arose. The loyalty and enthusiasm of the students never flagged, and the opening of this splendid new building was an occasion of general rejoicing.

The building for which I personally had to make the heaviest and most sustained drive was the Rutherford Library. The small central library originally located in the Arts Building had been supplemented by smaller departmental or faculty libraries scattered throughout the university. Even so, there was not library seating accommodation for more than a fraction of the students, and they had little opportunity to develop a real library habit. I hammered for awhile on the idea of a library as the heart of an educational institution, insisting that the information a student dug out for himself was more vital to him than anything absorbed from lectures, and so on, but found I was making little headway with the Board of Governors. The burgeoning tide of students impressed these practical men with the urgency of providing more classroom and laboratory space first. Eventually I won over the chairman by showing him how much space would be released for this purpose by collecting the numerous little branch libraries into one building, with beneficial results all round.

Miss Marjorie Sherlock, who had just been appointed university librarian, made a painstaking ~~study~~ study of library design and equipment, visiting a number of American institutions with new library buildings. Her cooperation with the architects ensured attention to many details of practical efficiency and convenience

of operation which even the best architect might overlook. The size and cost of the building caused some lifting of eyebrows, but experience soon justified both. The use of the building increased by leaps and bounds, absorbing its full capacity within a few years. Greatly expanded facilities have been built lately by the university.

We named the building the Rutherford Library, honoring Dr. A.C. Rutherford, first Premier of Alberta, who put through the Bill establishing the university. He was a gentle soul, ill-suited to the rough-and-tumble of politics, much more at home as Chancellor of the University, a post he graced for the 14 years 1927-41. He was a keen student and collector of Canadian historical documents. We were fortunate in acquiring for the university his collection of over 7000 early books and pamphlets, many of them dealing with Arctic discovery and the exploration and settlement of western Canada. Half of this collection was a gift to the university from his daughter, Mrs. S.H. McCuaig.

A section of the library building houses the J.D. Weir Law Library, again honoring a benefactor, whose contribution was to build up almost single-handed the faculty of Law, of which he was dean from 1926 until his premature death in 1942. An indefatigable worker, Weir was also an outstanding teacher. I listened to occasional lectures he gave to special groups during my first period at the university, and found he made Law so interesting I almost wished I had followed it as a profession. The law library has been enriched by memorial gifts from his widow, and his work also lives on in the persons of many distinguished students, one of whom, Wilbur F. Bowker, has been dean of the faculty since 1947.

Perhaps the only person surpassing Chancellor Rutherford in length of honorary service to the university was Chief Justice Horace Harvey, chairman of the Board of Governors 1918-1940. Harvey's career as a barrister in the North-West Territories began at Calgary in 1893. He was appointed a judge of the Supreme Court of the North-West Territories in 1904. He moved to Edmonton in 1907. By this time Alberta was a province and, in 1910, Harvey became its Chief Justice, an office he held until his decease in 1949. His 45 years on the Supreme Court is a record for Canada, and his latest judgments, in his 86th year, were as clear as his earliest. His good health and longevity were a tribute to his regular and abstemious life. An early riser, he usually spent ^{in summer} a couple of hours in his garden before breakfast. He was as favorably known for his gladioli as for his judgments. With his smooth face and unruffled brow, calmly dignified in all circumstances, he was the very pattern of a chief justice. His wife, too, was a strong and talented character, a sprightly conversationalist, and a gracious hostess. I recall an example of her vivid style. We were discussing a certain article available at Woodward's store, a notoriously crowded place during the wartime boom, when Mrs. Harvey commented, "One of these days I shall ask Horace to put on his battle dress and get it for me." We met Mrs. Harvey at meetings of the French Club quite early in our first period at Edmonton, and in time became well and pleasantly ^{acquainted} with both her and her husband.

After the library, in the university building program two other much-needed buildings competed for priority, namely, agriculture and engineering. I had visualized their coming in

this order, but had underestimated the vigorous propaganda of the engineers, flushed with the rapid growth of the petroleum industry in the province and backed by a well-organized profession. I warned Dr. R.D. Sinclair, dean of the faculty of Agriculture, that his building was in danger of being temporarily side-tracked. He set up an active planning committee, and got the backing of the provincial branch of the Agricultural Institute of Canada and other rural organizations. But the engineers won! Their building was opened in 1951, while ~~the~~ agriculture ^{had to wait over} ~~building was ready~~ two years ^{more} ~~later~~. This completed the building program which I was responsible for initiating, but the rate of expansion has continued to accelerate under my successors.

My regime saw two schools raised to faculty status: Dentistry and Education; and three new departments created: Fine Arts, Chemical and Petroleum Engineering, and Physical Education. This last grew so rapidly it has lately become a faculty. Apart from the usual problems of staff, space, and finance, only the launching of Fine Arts caused any special difficulty.

A pioneer community must give first thought to basic needs: shelter, food, and clothing, and an income to pay for these. But the human soul's hunger for the finer things of life is never more than dormant, needing only a little stimulus to waken it. The university had from the beginning done its share in nourishing a broader and deeper culture. Members of the staff carried the messages of literature and history throughout the province, often travelling and living under very primitive conditions. With the graduation of the first class of students in 1912, Dr. Tory appointed one of its members, A.E. Ottewell, to found the

department of Extension and bring the university more systematically to the people of Alberta. He soon found that farm families were keener to hear about the fine arts than about cultivation and cooking. They wanted something new and different from their everyday routine. In due course they were encouraged and guided towards self-expression in drama, painting, and music.

A powerful weapon was added to the arsenal of the department of Extension when the university radio station, CKUA, was set up on the university campus in 1927. The transmitter had been put together by the department of Electrical Engineering, mainly from secondhand materials. The university bought a pair of the highest windmill towers available, increased their height by setting a flag-pole atop of each, and stretched aerial wires between them. with this improvised equipment/^{the university}continued until 1940 to broadcast for a few hours each afternoon and evening during the university session a surprising wealth of educational and cultural programs. One program launched at the outset, the Music Hour, based on fine classical records, continues popular to this day, and must surely be one of the longest lived programs in radio history. With the advent of CKUA, it became possible for the university memorial organ, a beautiful instrument, to be shared with a wider public. The university organist, Professor L.H. Nichols, gave his time and talent freely, no fee being paid to any university radio contributor in those days.

In 1940 we borrowed money from the Provincial Government to build an up-to-date transmitter outside the city limits. This extended our coverage to most of the province, but proved too expensive to maintain on the university budget. In 1944 we entered into an arrangement with the Provincial Government

whereby the operation of the station was taken over by the Department of Telephones, the university retaining the right to the daily time required to transmit its programs. The Department of Telephones began full daily operation, adding school broadcasts, news, and other features. But the whole program remained mercifully free of commercials.

On November 21, 1947, the station's twentieth anniversary, we had a commemorative program. The first sound on the anniversary program, as on the original opening, was the playing of "God Save the King" on the piano. Then came this announcement:

"Twenty years ago tonight the University of Alberta began broadcasting from the university campus. The National Anthem was played then, as it was tonight, by Mrs. Emma Read Newton, wife of a professor who has since become president of the university. Mrs. Newton will be heard in recital about five minutes from now. Meanwhile I am going to ask Mr. H.P. Brown, who was the announcer at the opening ceremony, to resume that office."

Mr. Brown then recalled that Dr. Tory was the first person to speak at the opening, and asked me to take his place now. I began:

"I remember Dr. Tory beginning his talk twenty years ago a little hesitatingly, since talking into a microphone was a new and rather trying experience for most of us. But he soon got into his usual vigorous stride, and paid tribute to this great new educational instrument.

"Dr. Tory passed to the Great Beyond only last February, and Mr. Ottewell, first director of the department of Extension,

only a few months before Dr. Tory. They both lived to see enormous developments in the field of radio communication, and had no cause to be ashamed of the part played by our own station."

I continued with a short review of the history and accomplishments of the station. Then Mr. Brown announced:

"Now history will repeat itself. After Dr. Tory had spoken twenty years ago, Mrs. Newton followed with a short recital of pianoforte selections. Tonight, by request, she will play us a few of her own compositions. In two of them she will be joined by her friend, Mrs. Helen Walker, mezzo-soprano."

The Banff School of Fine Arts

An important milestone in the development of fine arts instruction by the university was reached in 1933, when E.A. Corbett, then director of the department of Extension, launched the Banff School of Fine Arts with a summer course in the theatre arts. For three summers this was carried on so successfully with the help of a grant from the Carnegie Corporation that this body extended the grant for a further two years. Corbett moved to Toronto in 1936 to become director of the newly formed Canadian Association for Adult Education, and was succeeded by Donald Cameron, one of our graduates in agriculture. By that time the Banff School had grown to 200 students taking courses in drama, music, and painting. Cameron had been agricultural secretary of the department of Extension, but after his appointment as director diverted more and more of his attention to the Banff School, until it became his major preoccupation. He poured his energy and enthusiasm into it. It was no surprise that he elected to continue as director of the Banff School even after his appointment

to the Canadian Senate in 1957.

After the Carnegie grant lapsed the university absorbed the school's annual deficits, but students' fees covered most of the costs. By the time I became president of the university in 1941, the Banff courses included drama, ballet, music, painting, modelling and pottery, weaving, and oral French, and there was continual pressure for new courses in specialized branches.

Cameron had about reached the end of his tether in improvising accommodation and equipment. The old theatre in which the work had begun was finally condemned to be torn down in 1939. Then, rather than see the school collapse, the people of Banff supported their School Board in building an auditorium seating about 600, with classrooms in a lower floor which could be used by the School Board in winter as well as by the School of Fine Arts in summer. The university equipped the stage. The Banff School Board had already made its two school buildings available in summer at nominal rental. The citizens of Banff had opened their hearts and their homes to students. The School itself began in 1937 to contract for houses and tourist cabins, and a year later established a school dining-room in a rented hall. But it was obvious that if the School was to continue its growth, more permanent arrangements were needed.

We were now in the 1940's, but the memory of the hungry '30's was still fresh, and governments were cautious about new commitments. The university needed millions to build up its campus at Edmonton, and was projecting a second campus at Calgary. We hesitated to ask the Government for a third campus at Banff, when most people still looked on the fine arts as frills rather than essential education.

When a group of small buildings centering on "Holiday House" came on the market at a bargain price, Cameron was for borrowing to buy them. But the University Act prohibited borrowing without the consent of the Government. The university had not borrowed for 30 years and, in view of the rejection of earlier requests for extra money for the Banff School, there was no reason to expect the Government to approve a break in this tradition for such a purpose. Further, to repay such a loan would necessitate raising students' fees. By this time the School was so popular the students would probably have come regardless, but there was still the danger of undesirable screening on the basis of ability to pay. We did not want to operate a school for "rich Americans." The primary purpose of the School was to help rural Alberta to become culturally self-sustaining. I should add that Cameron's success in raising scholarships went a good way to ensure that students of genuine ability were not excluded by financial need.

Self-help took another step in 1946, when "Bungalow Court", accommodating 60 students, was constructed from army hut materials and equipped with war surplus furniture, all obtained at very low cost and paid for by savings from school revenues. Later, "Holiday House" was purchased by a well-wisher and let to the School at nominal rental.

Early in 1943 I was guest speaker at the annual dinner of University of Alberta Alumni in Calgary, and as usual tried to stir them to more active and tangible support of their alma mater. On adjournment Mr Eric Harvie intimated he might be able to channel some funds our way, and suggested an early interview. At this interview he told me that Mrs. J.H. Woods, widow of the publisher

of The Calgary Herald, had been asked by her late husband to do something for the university and that he (Harvie) would be pleased to place before Mrs. Woods any suggestions I cared to make. I put forward a few, but none seemed to appeal to her except for a small grant she made annually to Dr. R.B. Sandin (our distinguished professor of organic chemistry mentioned in an earlier chapter) to help him investigate the chemistry of substances that may induce the development of cancer.

For nearly three years, in fact, my contacts with Mr. Harvie were rather baffling. Mrs. Woods, as I found later, was consistently well-disposed, and only groping for some acceptable way to fulfil her husband's wishes. But as long as Mr. Harvie acted as go-between I could not seem to get through. I had repeatedly mentioned the fine arts and the Banff School, but he had always rejected the suggestion with the comment, "Mrs. Woods is not interested in the arts." In the fall of 1945 my opportunity came, when Mrs. Woods invited me to dinner at her Calgary home, whither I went in company with Mr. Harvie. In the course of our conversation it emerged for the first time that because their home and business had been in Calgary, she would like her husband's money spent there. I suggested a memorial building either on the projected Calgary campus or at the Banff School, and was agreeably surprised, in view of Harvie's warnings, when she seized eagerly on the Banff proposal. Banff had been a holiday home and she regarded it with favour equal to Calgary. We drove together to Banff soon afterwards, to look over possible sites. On arrival there, I introduced Donald Cameron to Mrs. Woods and Mr. Harvie, having warned Cameron in advance to meet us.

None of the sites we inspected that afternoon, as we tramped through fresh snow, were entirely adequate, but early the next spring the National Parks authorities, whom both Cameron and I had visited in Ottawa, gave us a magnificent site on the slope of Tunnel Mountain.

More difficulties and delays were to follow. We overcame Harvie's reluctance to give money to a state university by setting up the Banff Foundation, with himself and Cameron among the directors. By this time Cameron and Harvie had become intimate, working as a team in promoting the finances of the Banff School. We had a disquieting meeting in the office of our Board chairman, Mr. Justice H.H. Parlee, the others present being Chancellor G.F. McNally, Mr. Harvie, Mr. Sem Field (university solicitor), and myself. It came as a shock when Harvie, reflecting Cameron's dreams, announced that Mrs. Woods' initial gift of \$50,000 would be conditional on our operating the School the year round. It had been a summer school only, and his proposal, reasonable enough as a long-range objective, seemed as an immediate commitment unreasonable to everyone else present. It made a single gift conditional on our ~~year~~ underwriting an annual budget several times its size. There was no mention then of making the School the general centre for continuing education of all sorts as well as the convention centre it has since become. Harvie's condition was for year-round operation as a school of fine arts.

The university itself built and equipped the first permanent residential chalet in 1947, at a cost of \$60,000. Harvie relented on his conditions so that the second and third chalets were built with \$125,000 from Mrs. Woods in readiness for the summer session

of 1949. One of these serves as administration building, besides including student dining rooms on two floors. The other is residential. Together they make a splendid memorial to a great Alberta citizen, Lt. Col. J.H. Woods.

Every individual worth his salt thinks his own show the most important one, and is disappointed or even aggrieved when he gets less financial support than he thinks he should have. In a university, the president and the chairman of the Board have the thankless task of keeping a balance between competing claims. Memories of his earlier frustrations betrayed Cameron, in his book, "Campus in the Clouds" (McClelland and Stewart, 1950) into injustice to the memory of Chairman H.H. Parlee, by leaving the impression that the chairman was unsympathetic to the Banff School and an obstacle to progress. The university was severely handicapped by inadequate funds, and the chairman reflected accurately the judgment of his Board, as he was duty-bound to do. He also knew the temper of the Government. Once he proposed to the Premier that we should build a beautiful little non-denominational chapel on the campus, to be kept open at all times, encouraging the students to develop the habit of retiring for short periods of quiet meditation. He was met with the observation, "You don't need beautiful buildings to worship God." The Premier showed the honesty of this conviction in the austere plainness of the structure built for his own church on Jasper Avenue. But the chairman still believed in the beneficent influence of beauty in the students' environment, and he was more than willing to help the Banff School to the limit of our resources — but not beyond that limit.

When Mr. C.M. MacLeod succeeded Mr. Justice Parlee as chairman

in the last year of my regime, we were on the eve of a freer-spending era based on soaring provincial revenues from the sale of oil leases. Mr. MacLeod was the more interested in the Banff School because a member of his family had been an enthusiastic student there. He was also a trusted, high-ranking employee of the Province, with ready access to the men in control of the purse-strings. These factors contributed to more liberal support of the Banff School, but the comparative penury of earlier years by no means reflected any lack of interest and goodwill on the part of the chairman.

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Meanwhile, what of art on the Edmonton campus? Architecture, at once a science and an art, with the job of combining beauty with functional utility, was established as a formal department of instruction in 1913, under the able leadership of Professor Cecil S. Burgess. Unfortunately, it lapsed under the exigencies of a still lingering depression when he retired in 1940, but not before he and his colleagues had made a substantial contribution, both directly and through his students who still carry on.

More informally, student life in the university had been enriched from the outset by voluntary sharing in glee clubs, mixed choruses, operettas, plays, and orchestras. The choruses were often directed by Professor L.H. Nichols, university organist, and dramatic productions and orchestras by other members of the staff or by gifted students. Master classes in piano had been held as part of the summer session, conducted by such noted artists as Norman Wilks and Max Pirani. The Extension Department had featured fine arts in its province-wide program. But there

was still no permanently organized department of fine arts.

The university's membership in the Western Board of Music, instituted in 1935, pointed up the need for a professor of music to give more continuous leadership than was possible by voluntary associates such as Mr. Vernon Barford, a pioneer Edmonton organist and honorary graduate of the university. I had consistently preached the gospel of fine arts as a mark of the mature culture Alberta should now aim to demonstrate. But we had to wait our take-over in 1944-45 of the Normal Schools and all responsibility for teacher education in the province to give the final filip to our drive to establish a department of fine arts, complete with divisions of music, painting, and drama. These were all part of the normal school curriculum.

Dividends from the new department came quickly and generously. I remember my deep enjoyment of a play in Convocation Hall, which had been written on a western theme by one of our own graduates. The cast, the stage settings, the incidental music and the orchestra that played it, were all our own. The whole production was home-grown and genuine.

Professor H.G. Glyde, a graduate of the Slade School of Art, came to us from the Provincial Institute of Technology and Art in Calgary, after proving his mettle there and in summer sessions at the Banff School. It was due in no small part to his inspiration that my wife made the Emma Read Newton collection of paintings and other art objects for presentation to the university on our retirement. Several of his pictures were included, along with examples of ^{the work of} such other noted Canadian artists as Emily Carr, A.Y. Jackson, and Sarah M. Robertson. The last-named had been

a school chum of my wife's, and I was privileged to share their lifelong friendship. Sarah was a "painters' painter", with a spirit as rare as her paintings.

Glyde's portraits of presidents and chancellors, and his murals in the Rutherford library and students' union buildings (all his gifts to the university), and his bas-reliefs on various Edmonton buildings, further attest his skill and craftsmanship.

Professor Richard Eaton is another outstanding member who joined the department early. His genius as a conductor quickly brought the University Mixed Chorus to countrywide attention. Others who came later I had not the same opportunity to judge, but obviously good team work lifted the tone not only of campus life but of the cultural life of the whole province. Community classes organized by the department of extension and instructed or guided by members of the department of fine arts were a potent influence for good.

A mine of cultural ore had been left nearly untouched until the Rockefeller Foundation recommended Robert Gard, then in charge of their folklore project at Cornell University, as instructor in playwriting for the 1942 session of the Banff School. So enthusiastic was Gard about what he found in Alberta he inspired Donald Cameron to apply for and secure from the Foundation grants to enable Gard to be appointed director of the Alberta Folklore and Local History project in 1943 and 1944. Gard had a nose for smelling out interesting old-timers and a flair for writing up their stories effectively, either as dramatic prose or as drama for the stage. He produced several volumes of type-written material, one set of which we bound for safe-keeping

in the university library, with a second set kept available for loan of separate stories to authors as desired. He collected, too, a set of Bob Edwards' famous "Calgary Eye-Opener". At Gard's urging, we launched in 1943 the "Alberta Folklore Quarterly", but this was premature, and expired soon after his departure, for lack of wide enough support. However, the numbers published supplemented the records of historical and legendary material which might otherwise have been lost with the passing of the pioneers. A number of plays based on these materials by Gard and other writers were produced on both the Banff and Edmonton campuses.

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In the chapter on my first period with the University of Alberta, I mentioned some of the faculty members with whom I was privileged to associate. From the lonely eminence of the president's office I saw them in a new perspective which disclosed additional qualities --mostly good! Two were unique. Dr. John W. Scott, professor of Medicine and for many years dean of his faculty, asked me to reduce his salary, saying he had transferred some of his work to a colleague. Dr. Mark R. Marshall, professor of Ophthalmology, accepted no remuneration for his services to the university, but asked me to pay an equivalent sum into a fund to improve the research equipment of his department. Heartwarming experiences of this sort were a splendid antidote to administrative headaches.

A kind of balance wheel for us all was Dr. John Macdonald, whose imperturbable serenity and calm judgment steadied us when crises threatened. An Edinburgh scholar, Macdonald joined the department of Philosophy in 1921 and became dean of the faculty

of Arts and Science in 1945. When George M. Smith, who had succeeded W.A.R. Kerr as the second dean of that faculty in 1936, passed on in 1945, and R.K. Gordon, who had been acting dean during Smith's extended illness, preferred not to accept a permanent appointment in that office, my thought naturally turned to Macdonald. The head of another department in the same faculty warned me that Macdonald's distinction as a scholar was not matched by taste or aptitude for organization. That indeed was my own impression. But he confounded the doubters by developing a model administration of his faculty and an impeccably organized office. And he accomplished this without sacrificing his scholarly interests. I could always count upon him at need in any direction.

Another life-saver to me was Dr. Walter H. Johns, of the department~~s~~ of Classics, who willingly answered my call for an administrative assistant, though he was reluctant to give up part of his teaching as he much enjoyed direct contacts with students. I sought to encourage him by saying the post might open the way for appointment some day as head of an educational institution. A year later he told me that if he had ever had any desire to become a university president, he had lost it after seeing what I had to go through! Later Professor Andrew Stewart, of the department of Political Economy, accepted my invitation to add to his existing duties the post of dean of Business Affairs. He and Johns made a wonderful working team, and my burden became much more bearable.

After I retired from the presidency in 1950, Stewart and Johns graduated to the positions of president and vice-president respectively. When Stewart moved to the chairmanship of the Board

of Broadcast Governors ~~in~~ the beginning of 1959, Johns was invited to succeed him. Then he shewed the sincerity of his earlier statement to me by refusing the appointment, but a few months later was prevailed upon to accept it as a matter of duty.

Among the office and custodial staff there were also outstanding examples of devotion beyond the call of duty. I think of Archie West, long-time bursar, who never found anything too much to do for the university or for the president. In Dr. Tory's time, Archie drove us to the railway station at unearthly hours, as we started on our numerous trips to National Research Council committee meetings, and was there to meet us when we got home, --again in the blackness of the night. Firm to the point of brusqueness with people coming to his office to ask unreasonable things, he was kindness itself to those deserving help.

All the service departments came under the administrative wing of the bursar, and he as well as the president had cause to be grateful for devoted staff. There was Charlie Hosford, postmaster and manager of the University Book Store; Mrs. Donnan, manager of the Printing Department; Harry Miller, university electrician; Harry Rowe, university plumber; and others I cannot take space to mention, any one of whom might have inspired the slogan, "Service with a smile", and who gave it unstintingly. One I remember particularly in my first period with the university, just after World War I, was Mr. J.A. Langlands, superintendent of property. A patriarchal figure, with soft white beard, we called him affectionately "Daddy Langlands". He it was we approached to carry out work orders for a new partition, or a new laboratory bench, or an extra sink or electrical outlet. We were developing

our accommodation and equipment by little bits and pieces in those days. When we pressed him to go a little beyond what the order called for, there was a struggle between his Scottish nature and his kind heart, the latter usually winning as he commented, "Oh well, might as well be hung for a sheep as a lamb."

Among the custodial staff, Reg Lister was unique. His first job at the university in 1911, as an immigrant aged 19, was helping to dig the basement of the president's house. By native ability, tactful firmness, and good humour, he rose to be the superintendent of residences. In 1949, by authority of the Senate and the Board of Governors, I presented him to the Chancellor for admission as an honorary member of Convocation. This action touched off a train of spontaneous enthusiasm among students, graduates, and staff. The graduating class admitted him to honorary membership, and the Alumni Association made him an honorary life member. The chairman of the Men's House Committee, at the valedictory exercises of Class '49, remarked that Reg Lister had taught the students some of the most important things they had learned at the university, in particular he had taught them how to live together. He added that Reg struck terror into the hearts of obstreperous freshmen, but that no student ever left the residence halls without feeling that Mr. Lister was his personal friend. After his accession to Convocation, Reg took his place ^{with} ~~on~~ the platform party on such occasions, and no member of that distinguished company thought it other than entirely fitting for him to do so. As part of the Golden Jubilee celebrations in 1958, the university published "My Forty-Five Years on the Campus", being Reg's own engaging account of his experiences.

During my presidency, the question of pensions for the service and custodial staff became critical. In 1926, Dr. Tory introduced The T.I.A.A. scheme for the academic staff, but nothing had yet been done for the others. Some of them had already passed the normal retiring age and had no help in prospect from the university to supplement their own, often meagre, savings. It gave me great satisfaction, after two years' trying, to be able to persuade the Board of Governors and the Provincial Government to provide for these faithful servants small pensions based on length of service. We had to start very modestly, but more liberal provision was forthcoming before many years.

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Our relations with the Provincial Government were always cordial, even if they did not give us all we asked. With Premier and Mrs. Aberhart my wife and I quickly got on the best of terms. They were welcome visitors in the president's house on the campus, and in turn received us hospitably in their suite in the Macdonald Hotel. Oddly enough, this contrasted with the Premier's relative toughness in business interviews, when indeed he could be hard as nails. This defensive attitude may have resulted in part from the frustration of his attempts to experiment with Social Credit theories, and in part from the hard times his government had to face. He always showed great acumen. More than once Mr. Parlee, our Board chairman, exclaimed as we came away from an interview in the Premier's office, "Doctor, that man is too smart for us!" His successor, Premier Manning, though a less dominant personality, was an able administrator, with acute judgment and a strong business sense, easily detecting any weak points in our presentation,

but invariably friendly.

It was during my regime that Canadian university students began to develop a lively political consciousness and activity. Before that, any embarrassment they caused us with the Government arose mainly from questionable "jokes" published in the student newspaper. These were usually copied from student papers published in other countries, and it was not always easy to convince enterprising editors that ^{they} should operate within the ethical code of their own community. As for politics, the Government took little notice of student ventures, though they did lift an eyebrow when the students included Tim Buck, national leader of the Communist party, in their list of invited speakers. But the local evening newspaper appeared more concerned than the Government. When Mr. Coldwell, national leader of the C.C.F., addressed the Undergraduate Education Society, being introduced by myself on invitation of the students, the paper ran a critical editorial, even though Mr. Coldwell's address was on education, not politics. In justice I must add that the newspaper published in full my reply, in which I said among other things, "we should take positive, energetic steps to create public respect for politics as a profession second only to the ministry of the church in sacred responsibility. We must ^r strive to create a tradition of public service as a duty of the best men and women in our land. ... We think it an essential part of the function and responsibility of a university to prepare students for public service. ..."

Incidentally, I look back on my small share in initiating the radio program known as "Citizens' Forum" as one of my most satisfying bits of extra-mural service. In 1942-43 I was chairman

of the Enquiry Committee appointed by the CBC which organized a series of round-table discussions under the title "Of Things to Come". In the opening broadcast from Winnipeg, February 28, I said, "We intend to invite Canadians from every walk of life to come and tell us what they hope for. We want to hear from experts and laymen, economists and business men, capitalists and socialists, free enterprisers and planners, union men and farmers." In the next season, under the chairmanship of Morley Callaghan (who, along with Robert Mackenzie, now of the London School of Economics, was a member of our first round table) the practice was begun of following each discussion with a citizens' forum organized by the Canadian Association for Adult Education. There is no doubt that these broadcasts, continuing over many years, have done much to awaken interest in public affairs. Anything we can do to cure the ghastly farce of "democratic" elections in which only 15 to 30 percent of the electorate take the trouble to vote is surely worth while.

Another project whose birth I attended was the launching of the Arctic Institute of North America. The organizational meeting was held in the Windsor Hotel, Montreal. I offered to find space for the proposed Institute in the University of Alberta, the most northerly university in Canada, but McGill University was wisely chosen for its greater accessibility to most of the workers, and its greater resources. The meeting brought me in contact with many interesting persons, none more so than Vilhjalmur Stefansson. He entertained me ~~xx~~ at breakfast one morning, to discuss the keeping qualities of pemmican, which he thought was still being found preserved in the soils of Alberta. I looked into this later, only to find that what

Stefansson thought was pemmican was really large sclerotia, hardened masses of the threadlike bodies of a soil fungus. The Arctic Institute went on from strength to strength, but I took no active part in it, though my early association earned me the titles of Founder and Governor.

One bit of public service I thoroughly enjoyed was membership in the Board of Trustees of the National Gallery of Canada, ~~1947-5~~ 1947- 52. The invitation came in a gracious letter from Prime Minister Mackenzie King, and I was glad to accept. Harry Southam, chairman of the Board, and Harry McCurry, director of the Gallery, who served as secretary, were both old friends of ours. Later, Harry Southam resigned the chairmanship, and was succeeded by Rt. Hon. Vincent Massey. When the latter became Governor General, Southam took over the post of chairman again. It was on the initiative of Mr. Massey that Lawren Harris joined the Board. This was a break with tradition, which had called for a Board made up of laymen -- art lovers but not professional artists -- the theory being that this would make for more objective judgment as between various schools of art. However, the authoritative opinion of a distinguished artist such as Lawren Harris was undoubtedly helpful in many instances. It was a busy period, during which plans were made for the new gallery, based on an architectural competition. I profited greatly from association with the group, and was loath to resign from it. But when we moved to the Vancouver area, the home of Lawren Harris, I felt it made a board of five members lopsided to have two from British Columbia. Later the Board was considerably enlarged.

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To return to the university and politics: Some near-political questions arose of course in connection with student government within the university. Under the wise leadership of Dr. Tory, the first president, and Dr. J.M. MacEachran, the first provost, the students were encouraged from the outset in undertaking the fullest possible measure of self-government. This they did for the most part very responsibly and successfully. Only occasionally did the university executive officers have to remind the students that there is no such thing as complete self-government, that even sovereign powers must accommodate their actions to the pressure of international obligations, that a society must regulate its conduct in harmony not only with its own constitution but also with the laws and traditions of the body from which it holds its charter.

Actually the student fraternities were a more frequent source of worry than the main student government. Fraternities had been excluded by Dr. Tory, but admitted by the second president, Dr. R.C. Wallace. Some thought this a mistake, and it is interesting to note that when wallace moved to Queen's University he took no steps to introduce fraternities there. Undoubtedly fraternities play a useful role in housing a number of students and giving them a sense of "belonging" which makes for social stability. But they do introduce problems of cliques and snobbism, and occasional electioneering in the Students' Union. We did set our face consistently against professional fraternities, feeling that the narrow specialism which seems increasingly inescapable in modern professional life should not carry over into social life. For the same reason we heartily approved the policy of the two church colleges on the campus, of taking into residence students

of all denominations. Segregation by religion is no better than segregation by race. Most institutions in Canada that began as denominational colleges have long since abandoned that feature. Men and women of all races and religions must learn to live together in harmony, and the impressionable student years are surely the best time to begin this learning process.

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My wife had always had a strong desire to go north, perhaps influenced by her delight in the northern lights, which often gave magnificent displays in Edmonton. When the Alaska Highway was opened to tourist traffic in the summer of 1950, my last year in the president's office, she proposed we take a holiday trip to Fairbanks. Accommodations along the way were still rather primitive, and service stations far apart, but we got along without more serious trouble than having to replace two tires. The unpaved road was rough in spots. My wife was so stimulated by the clear bracing air and magnificent scenery that she wrote a little poem each day enshrining the high points as we sped along. These were later published in THE NEW TRAIL under the title, "Memos of Alaska Highway".

One really amusing experience came as we reached Fairbanks in mid-afternoon, and sought accommodation. The first hotel, being fully booked, referred us to a second. Here the proprietress was outside, hosing off the wooden sidewalk. A rather forbidding figure, she held one eye shut constantly, giving the impression of a permanent defect. A brief "Full up" was the only reply she vouchsafed to our first inquiry. Then we asked if she could suggest any respectable place where we might look for lodging.

Now opening both eyes wide she snapped, "There are no respectable places in Fairbanks --but you might try the Pioneer Hotel."

Happily there was still one good double room with bath (!) available there, and the wellbeing of the place completely belied our informant's pessimistic judgment. The name of the hotel, too, was quite in keeping with the group of old-timers seated in the lobby. We wished we might have had time to get acquainted with some of them and hear the stories they swapped as they looked out on the ^{Chena Slough}~~Tanana River~~ with its constant traffic of light float-planes.

Of course we visited the university, a few miles out of town. There we were received by Dr. Charles E. Bunnell, President Emeritus, who had founded the place and developed it over many years -- and retired only the year before our visit. He had visited us once in Edmonton, and was delighted to show us now his magnum opus. We appreciated particularly the care he had ~~at~~^{taken} to collect and preserve in a little museum the artifacts of Indian and Eskimo cultures that would soon be unobtainable.

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I have mentioned in the course of this narrative a number of distinguished visitors to the university, but have still to note the noblest of them all, His Excellency the Earl of Athlone and Her Royal Highness the Princess Alice. They visited us twice during their term of office in Government House, ^{at}Ottawa. The first time, September 20, 1943, I had the privilege of presenting Lord Athlone to the Chancellor and Convocation for the honorary degree of Doctor of Laws. His dignified bearing and quiet way of speaking commanded our respect, while the sparkling vivacity of his gracious consort completely won our hearts.

Before their second visit, His Excellency sent the welcome message that he would enjoy having lunch with his colleagues, the executive and administrative officers of the university. As Chancellor of London University and Fellow of the Royal Society, he was certainly at home as of right in any university circle, but his meaningful use of his honorary membership in the University of Alberta, both in this message and later at the luncheon, where he spoke as though one of us, could scarcely fail to please us.

Rt. Hon. Louis St. Laurent made in our Convocation Hall in April, 1949, what was virtually the opening speech of his first campaign for election after he succeeded Mackenzie King as Prime Minister. Naturally we did not expect an outright political speech in the university, but the packed audience of students was disappointed that he served us no more than hors d'oeuvres, saving his real meat for the Canadian Club luncheon that followed over-town. Mr. Justice Parlee, chairman of our Board, remarked to me that the Prime Minister's usual political astuteness had failed him on that occasion, that he had missed a golden opportunity to win the rising generation. But Mr. St. Laurent did charm^{us} of course, with his genial personality.

Mr. J.S. McLean, president of Canada Packers, never actually visited the university, in my time at least, but he warmed our hearts every year with a letter enclosing his \$2000-cheque in support of the McLean bursaries. Quite apart from the welcome enclosure, the letter itself was among the pleasantest that came to my office, always expressing deep interest in the students and his special pleasure in helping a few of them finance their education. His innate kindness extended of course to his own

staff, and in one instance had amusing consequences. The General Superintendent of Canada Packers was a member of the executive council of the Agricultural Institute of Canada while I was its president in 1942-43, and when we were discussing at one of our meetings the advisability of enlarging our office staff, he told us this story as a warning. J.S. McLean had a very good secretary, a young man who could type as fast as J.S. could dictate -- indeed he could prepare much of the correspondence without dictation -- and perform other office duties with comparable efficiency. J.S., feeling the secretary was overworked, gave him an assistant. Then the two of them together could not get through the work! The secretary would dictate to the assistant, who would then transcribe his shorthand notes to type, and so on. An illustration of the operation of Parkinson's Law.

U. S. Vice-President Henry A. Wallace's visit to Edmonton in July, 1944, was memorable to me as the occasion of my only formal press conference. Mr. Wallace had asked in advance to be met by the president of the university and the professor of animal science. He was on his way home from a ~~visit~~^{visit} to China and Russian Siberia, and wished to share immediately some of the things he had learned. In private life the proprietor of "Wallace's Farmer", a leading agricultural journal in Iowa, he was of course interested in the agriculture of the countries he had visited, but had been greatly impressed also by the Russian policy in Siberia of developing industry hand in hand with agriculture. This he thought was something we could afford to copy, to maintain a more balanced economy in our central plains. Mr. Wallace's private plane stopped over a little more than two hours at the U.S. Army Air

Base in Edmonton, during which we had dinner together in the Officers' mess — but mainly the Vice-President talked and we listened. A platoon of press reporters was waiting outside in the hope of interviewing the Vice-President. Much to my surprise, he announced on rising from dinner that he was going on at once and would leave me to hold a press conference on his behalf. An American information officer placed me at the head of a long table and marshalled the correspondents along the two sides. If I had had any inkling that this greatness was to be thrust upon me, I would have asked the Vice-President some of the questions I could easily have foreseen, especially on the political situation, which he did not touch upon. As it was, I felt my only press conference was rather a flop. But the Edmonton Journal gave almost a whole column to it next day.

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My presidency coincided with a period of soul-searching and difficult decisions by university administrators. The war necessarily threw the balance of interest towards the sciences, though the permanent human values we were fighting to maintain reside in the humanities. wisely, Dominion Government policy was not to call to active service undergraduate students in any faculty who were making good progress with their studies. This policy recognized the need to preserve at least the framework of the Arts and Law faculties as sources of potential leadership after the war. But the natural patriotism of many students led them either to enlist or to enroll in engineering or other applied science courses for which there seemed special need at the moment. My reports to Convocation during the war show a pretty consistent

effort to steer a middle course, a constant urging that we must win the war of ideas as well as the military conflict.

A second problem was the excessive deflection of scientific research to wartime projects, necessarily of an applied nature. Universities are the traditional seat of research in pure science. Our stock of theoretical knowledge must be constantly replenished, else technological progress would peter out for lack of this essential raw material. Administrative officers had to make special efforts to nourish the spirit of enquiry after new knowledge, regardless of its apparent applicability to immediate problems. The advent of the atomic era made the importance of this so clear that government, and even industrial, laboratories now sponsor much so-called pure science research.

The third major problem developed just after the war, the steep rise in student numbers. Quite apart from the business of finding student accommodation and staff, there was the old question of whether it is better to do a little well or a lot indifferently. There was no question, of course, about the need to accommodate students whose courses had been interrupted or postponed by war service. But technological changes brought about, or at least hastened, by the war had awakened in the public a new appreciation of higher education and advanced training as indispensable concomitants of national progress. Much increased numbers of young people continued to crowd into the universities after the influx of returned soldiers had subsided. The universities could no longer maintain their position as the preserve of an intellectual elite. The most that a state university could reasonably do was to make entrance requirements strict enough to screen out those who should

more properly be directed into technical or vocational schools.

Finally, there was the question of what should be our objectives in education. Undoubtedly the universities should minister to the basic material needs of the world, but this was manifestly not enough. War made us ask ourselves, Had education as well as religion failed to restrain the uncivilized butchery of men by men? Now greater and more terrible wars had been made possible by the unfettered use of technology. Obviously the only effective defence against the atomic bomb was peace. What change of outlook and direction was required in order that education might make a fuller contribution to the spirit and technique of peace? In a world that appeared to students to be dominated by technology, the urge was to follow applied science studies. But the way of technology had not proved to be the way of salvation. While building for the future, we had still to hold fast to that which was good in the past. The primary purpose of education was still to be the inculcation of the best in English culture, that complex of ideas, customs, and beliefs, that heritage of art, music, literature, and, above all, law and religion, that make up our tradition. The atomic era, then, did not so much require a change of educational objectives as their intensification. And we had more than ever to hold out the hand of brotherhood to men of other nations and cultural traditions.

My last address to the graduating class, at the Convocation of May 17, 1950, ended with these two paragraphs:

"Many of you graduands will live to see the year 2000. That is a solemn thought, because so much can happen in half a century nowadays, and you cannot escape either your share of responsibility

for it, or the consequences. The first half of the twentieth century has been marked by great additions of material power in the hands of mankind, through control over the forces of nature. But these have not saved us from grievous calamities that made this half-century a disappointing and disastrous period. War on a worldwide scale appeared for the first time. It happened twice, and the second time it was total war. This period saw also the first appearance of the atrocious sin of genocide. It saw democracy in eclipse in many countries, and threatened in our own, something we could not have dreamed of at the turn of the century. It saw freedom obliterated over a large part of the earth.

"In your half of the twentieth century, try cultivating the things of the spirit instead of power, and see if you will not have a happier life than we had. We have shown you how to build good roads, bridges, motor cars, and aeroplanes, but we have left you to discover how to use these to bind mankind together in peace and brotherhood. You must learn how to speak the word that is 'with power', the word that heals. Place the emphasis in education on thought and speech. Worship God and not the atom."

Chapter XIII

"THE SEVENTH DAY"

"The Sabbath was made for man," said the Great Teacher, and proceeded to do many good works on that day. I had noted with approval the Old Country habit of retiring early, while there was still time and energy left to give some worthwhile voluntary ~~service~~ public service. With this in mind, my wife and I had long since made modest provision for retiring when I ~~was~~ reached age 60. Actually I retired from the university at age 61. As it turned out, my public service was limited to the first three years of retirement. But I came to see another advantage in retiring early: I noticed that men who stayed with their profession too long were sometimes unable to develop effectively a new life filled with new interests.

The presidency of a university is a strenuous job. At the formal dinner in Athabasca Hall, celebrating the Golden Jubilee of the University of Alberta in 1958 (eight years after I had retired), I was seated next to Mrs. Sidney Smith, whose husband had not long before left the presidency of the University of Toronto to become Secretary of State for External Affairs in the Diefenbaker government. In the course of our conversation she remarked that so far they had found their new life, busy as it was, less exacting and exhausting than their life in the university.

A university president should be a sound scholar, a status that can be maintained only by constant reading and quiet thought. But the combined demands of students, staff, alumni, board of governors, provincial government, and the general public, left little time or energy for the pursuit of scholarship. This did not quench the love of learning, and I was the more ready to

retire in the hope of recovering some lost ground.

The first call on my newly acquired free time was a request from the Provincial Government to continue as director of research for the Research Council of Alberta on a half-time basis. This I did for one year.

A second call, which came in the fall of 1950, just after my retirement from the university, was to organize and lead a team of "experts" giving technical assistance under the Food and Agriculture Organization of the United Nations. This international activity was just getting under way, and two large projects were pending, for Syria and Pakistan. I was given a choice of either. This I regretfully declined, because it was a long-term assignment, and would have disrupted completely other commitments I had already made, notably the foregoing one to the ~~km~~ Alberta Research Council and another to the Agricultural Institute of Canada. It was some compensation that a few years later both my brothers served the F.A.O., in Ceylon and Indonesia respectively.

My commitment to the Agricultural Institute of Canada had to do with a survey of agricultural research in this country. I had already been working a year or more with a committee planning the nature and scope of the survey, and selecting a list of subjects to be covered and individuals to deal with them. I had agreed to direct the survey and edit the report. When I retired from the presidency in 1950 the time was ripe to carry out the agreed program. Actually it took two more years to complete the survey and publish the report of 193 pages. This delay is not too surprising, since all the work was done on a voluntary basis, and the 35 contributors to the report were all busy with full programs

of their own. Variability in both experimental materials and environmental factors makes agricultural research notoriously difficult, and this variability extends in full measure to the experimenters themselves. I wore out my old typewriter before I succeeded in collecting all the papers and getting them into printable form. But it was the sort of thing my experience had equipped me to do, and the report was a natural complement to that on "Graduate Instruction in Agriculture in Canada", which I had prepared for the Canadian Society of ~~Technical Agriculturists~~ Technical Agriculturists (the forerunner of the Institute) twenty-three years earlier. This earlier report had emphasized the research basis of graduate work, and it was now a great satisfaction to find that Canadian agricultural scientists had made great strides along well-chosen paths. Furthermore, the practical value of their contributions was obviously such as to justify generous financial support of their work.

Meanwhile, another call in the first year of my retirement was an invitation from Sir Albert Walsh, Chief Justice of Newfoundland and Chairman of the Board of Regents of Memorial University, to make a survey of that university and prepare a long-range program for its development. In his first letter, Sir Albert asked what my fee would be, and I was pleased to answer that it would be nil, as what he asked me to do was just the kind of service I had hoped to be able to give.

One of the fundamental frustrations of life is that as we increase in experience and wisdom we have less opportunity to make effective use of these, that is, at least, after a certain point. When I ~~retired~~ retired from the presidency I said that if I could

endow a vigorous young man with my experience he should be able to do a grand job as my successor. I had welcomed my share in the survey of agricultural research as an outlet for half my professional experience, and now I welcomed the survey of Memorial ^{University} ~~College~~ as an opportunity to use the other half, that relating to teaching and educational administration.

Memorial University of course paid all travelling and hotel expenses for me and my wife, and entertained us most kindly during the three weeks of March, 1951, that we were in St. John's. I had studied in advance all the relevant documents I could get on Newfoundland and its university, so was able to make very full use of the limited time there. Best of all rewards for my labours was the prompt carrying out of my most important recommendations, those concerning removal to a new and more adequate site and the selection of a president.

After Newfoundland became the tenth province of Canada, its legislature in 1949 raised the status of Memorial ^{University} College to that of a degree-granting institution. The college had been in operation some twenty-five years, and had really outgrown its accommodation even for a two-year course. The new four-year course raised problems too great to be solved by any practicable expansion on its centre-town site. In company with Sir Albert Walsh and Dr. Frecker, then Deputy Minister of Education, I inspected a number of possible new sites on the outskirts of the city, and recommended one which they took prompt action to secure.

One of the gracious acts of the university was to bind in a number of printed copies of my report in red morocco leather, for distribution to a list of my choosing, the name of each

recipient being printed in gold lettering on the cover together with the title and authorship of the report. A few confidential recommendations were given verbally rather in the report, notably that concerning the selection of a president.

Dr. A.G. Hatcher, who had been professor of mathematics in Memorial University College since its inception, and had become the first president of the new university in 1949, was due to retire soon. Both Sir Leonard Outerbridge, Lieutenant Governor of Newfoundland and Official Visitor to the University, and Sir Albert Walsh, Chairman of the Board, had asked me for suggestions about a successor. Both mentioned that, other things being reasonably equal ~~xxxxx~~, the selection of a native son would be greatly appreciated by the community. Just before leaving St. John's, I gave them my opinion that Mr. Raymond Gushue, Chairman of the Newfoundland Fisheries Board, who was Newfoundland-born, was qualified for the post. Naturally I was pleased that in October, 1952, when the corner-stone of the administration building was laid on the new site, the ceremonies included not only the installation of Lord Rothermere as first Chancellor, but also of Raymond Gushue as ^{second}~~first~~ President.

we had seen something of Newfoundland on an earlier visit, and were once again impressed with the sturdy independence as well as the friendliness and hospitality of its people — not to mention their ruddy complexions. We have often wondered why dwellers on the Atlantic coast make their opposite numbers on the Pacific look comparatively anaemic. Could it be the brisk nor'easters? Or a diet featuring codfish? Whatever the explanation, it was a pleasure to see people look so attractively healthy. And of course the

island itself has great scenic beauty and other tourist attractions. Agriculture is limited, the soil having been scoured off by the last glaciation, but fishing, forest, mineral, and water-power resources give ample scope for the energies of this hardy and vigorous people.

I had just finished my Newfoundland report when we moved to the Pacific coast, whose gentler climate and more leisurely pace make a stronger appeal with advancing years. We went first to White Rock, a pretty little town some thirty miles south of Vancouver, on the United States border. It has wonderful sandy beaches, attracting crowds of weekend visitors. We obtained quiet isolation by locating at the top of a hill, with an unbroken view along the curving coast line and across the Gulf of Georgia to its enchanted islands, and in the greater distance the mountains of Vancouver Island and the snow-capped Olympics in the state of Washington.

The move cut us off from old contacts, and we had perforce to make a new life for ourselves. For my wife the course was clear. She set up a Christian Science practitioner's office in Vancouver, to which she commuted by train or bus twice a week, doing the rest of her professional work in White Rock. This worked reasonably well till she became an authorized teacher of Christian Science in the fall of 1952. The next spring we moved into Vancouver.

Dr. Norman Mackenzie, president of the University of British Columbia, wrote me promptly after our move to the coast, saying, "I hope you will think of the University of British Columbia as being completely at your disposal, as a sort of second home."

This warm invitation was greatly appreciated, though I made comparatively little use of it. Heavy traffic on the highways discouraged unnecessary driving; moreover, I was in two minds as to whether it was better to try to keep up my old ways or build something entirely new. Eventually I decided that, in my circumstances at least, it was unwise to straddle two horses, and I settled down to independent existence. The same instinct led me to go on the retired list of the Royal Society of Canada. I had been active in that body for over twenty years, but now/^{that} I was no longer in a position to make scientific contributions I ceased attending the meetings. After all, I had never had much taste for spectator sports.

Our considerable/^{property} at White Rock kept me physically occupied most of the time there, and in the remainder I explored my long-neglected library. I had collected quite a few books on political science and government, a field in which I was much interested. Strangely enough, I found after a time I was not getting the enjoyment I expected out of my reading. "Reading maketh a full man," as Francis Bacon remarked, but is fully satisfying only when conjoined with the other two members of his trilogy, namely, conference and writing. In comparative isolation I had little opportunity for conference with men ~~occupied~~ with the same studies, while writing, unless it be for publication, soon palls. The subjects of my reading were only a hobby/^{interest} with me, and I had no wish to offer inexpert or half-baked essays to the public. I fell back, therefore, on another reading hobby, foreign languages, in which my wife was equally interested.

What had begun for both of us as a study with utilitarian

purpose — myself to get access to foreign scientific literature, my wife as preparation for wider service in her field — gradually developed into a hobby. When people inquire the purpose of our foreign language study, I answer, "Some make a hobby of crossword puzzles, some of playing bridge. We enjoy languages as a pastime." For all that, languages have a wonderfully enriching effect, lifting us higher above our animal origin — language being a prime distinction between mankind and the lower animals --and opening doors to new worlds. We found on our European travels that some knowledge of the language of the people visited was a great help in understanding and entering into their way of living and thinking.

In western Europe the short distances and the contiguity of many small countries have long made bilingualism, or even trilingualism, almost a necessity to trade. Now with modern communications all the peoples of the world are becoming close neighbours, and lack of knowledge of other languages may be a road-block to mutual understanding and commerce. Thus for practical as well as cultural reasons we should introduce a second modern language into all our schools as fast as qualified teachers can be provided. And for pedagogical reasons instruction in a second language should start not later than grade three.

While a knowledge of more than one language is a powerful influence for mutual understanding and appreciation between different countries, paradoxically the use of more than one within^{a given} country has proved a divisive influence. This has been true from the Tower of Babel onwards. Modern instances include the strife between the Flemings and Walloons in Belgium, between Sinhalese and Tamils in Ceylon, and, alas, between English and French in Canada. Our Canadian problem is not of recent origin. In his

well-known Report of 1838, Lord Durham wrote: "I expected to find a contest between a government and a people: I found two nations warring in the bosom of a single state: I found a struggle, not of principles, but of races; and I perceived that it would be idle to attempt any amelioration of laws or institutions until we could first succeed in terminating the deadly hostility that now separates the inhabitants of Lower Canada into the hostile divisions of French and English."

The British North America Act, 1867, our present Constitution, gives equal status to the French and English languages in the Parliament of Canada, the Legislature of Quebec, the Supreme Court of Canada, and the Courts of Quebec. This was part of the effort to pacify the situation found by Lord Durham, but in the light of history was almost bound to fail of its purpose. The current French-Canadian claim, as one of the two "founding races", to equal language status throughout all Canada, certainly makes a romantic appeal, but the probable effects of extending such a divided situation to the whole country give us pause.

It must be admitted that English-speaking residents of Quebec have been remiss in failing to make themselves widely bilingual. It may be freely added that it is highly desirable for all Canadians to become bilingual, though not that in every case the second language should be French. There may be various grounds, cultural or commercial, why another language should be chosen in particular cases. A number of other ethnic groups have made substantial contributions to our Canadian pattern and development, especially in the west, and should have the right to preserve their mother tongues. Some individuals may be looking forward

to foreign trade contacts, and find Spanish or Russian, or even Chinese, more useful than French. Let us be free to choose, and let each language and culture stand on its own merits rather than lean on additional statutory supports.

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When we moved into an apartment in Vancouver in the spring of 1953, a further adjustment in our way of living became necessary. My wife had to give up her beloved Steinway concert-grand piano, while I, though willing enough to rest for a time from the superabundance of gardening thrust upon me at White Rock, in the end suffered from lack of outdoor occupation. Even walking in beautiful Stanley Park began to seem rather purposeless.

Work is one of man's greatest blessings, especially work in which he takes interest and pride. Those who imagine they can find lasting satisfaction in idleness are doomed to disappointment. Retirement should mark only a change in, not a cessation of, activity. Even before retirement men soon grow weary of too much leisure. After the 40-hour work week became general, enterprising men either looked for a second job or developed creative hobbies to fill their spare time.

While the kind of work preferred is a matter of individual taste, I believe the writer of the third chapter of Genesis erred in describing the tilling of the soil as a curse. In cultivating the soil, one cultivates at the same time health of mind and body. I first really learned to think, between the ages of 14 and 19, as I followed the plow through endless turns across wide acres. Cato evidently made good use of such opportunities in the third century B.C., since he was called from the plow to high office

in the Roman state, and also became the first Latin prose writer of distinction. But the single-furrow walking plow, drawn by a team of plodding horses — natural companions of quite thought — has been largely replaced by clanking machines which claim the operator's whole attention.

A partial solution for me came when we bought a summer cottage on Mayne Island. We had first explored a neighbouring Gulf island, North Pender, where some former university colleagues had made holiday homes. One property there which attracted us, but which we did not succeed in getting, had been built by an exceedingly interesting old gentleman, John MacKinnon, with whom we became close friends.

Mr. MacKinnon had reached the island as a young man by rowing a boat from Victoria, some thirty miles away. Before that, this enterprising young Scot had roamed over Central and South America as agent for a London firm of curio dealers. His most exciting project had been to collect shrunken heads from the head-hunters of Brazil. On James Point, North Pender Island, commanding a lordly view of seas, islands, and mountains, he built his house with his own hands. During some fifty years he surrounded this with a wealth of flowers and exotic shrubs and trees, including a magnificent cedar of Lebanon, which he grew from seed. We found in him a rare spirit, one of nature's true gentlemen. We visited him whenever possible on our island excursions, and for seven years, until his decease in 1963 at age 91, my wife regularly forwarded^{to}/him our weekly copy of "The Listener", and exchanged occasional letters. He gave her a hand-carved picture frame, a sample of the many beautiful ornaments and pieces of furniture,

his own handiwork, with which he had furnished his home. Living alone, bereft of wife and family, he wrote rather sadly at times, as when he spoke of spending the hours "stirring the ashes of the past." But this poetic phrase is a sample of the diction which made his letters a treat. Our lives were enriched by knowing him.

On Mayne Island, in the spring of 1958, we found our summer home -- $6\frac{1}{2}$ acres on Georgina Point, at the north tip of the island. About half was meadow land, sloping gently to the rocky shore, the other half rocky upland, covered with beautiful mixed forest. The large arbutus and Douglas fir trees were especially fine. We had never before seen arbutus trees in bloom, their tops appearing as though covered with countless lily-of-the-valley clusters, the pleasant scent pervading the atmosphere round about. Later the fruit seemed especially attractive to the Northern Band-tailed pigeons; small flocks of these filled the air with their satisfied murmurings as they gorged.

A very attractive five-room bungalow had been built in a secluded corner by a retired R.A.F. officer. Plumbing and electrical services were still wanting, and until these could be installed we lived that first summer in primitive and happy simplicity. We did our cooking on a one-burner Coleman stove, set in the fire-place to draw off the fumes.

The electric wiring we had done by a visiting contractor, while George Slinn, a middle-aged but retired plumber who was our nearest neighbour to the east -- a mile away -- kindly saw me through the plumbing. He was a rough diamond, but still a diamond. He had retired/^{early}because handicapped by a disability incurred in the First Great War, which he got into by fibbing

about his age, and anyway, as he said, "People work long after they should retire just to get cream in their tea instead of milk." Being the only plumber on the island, and having a generous nature, George had little opportunity to act out the role of retiree.

One islander we much enjoyed was Jimmy Neill, a bachelor Scot of 80-odd years. At the entrance to his considerable woodland property he had an appropriate sign: "Happy Home". We might have visited him oftener but for the long steep path leading down from the highway to his shack perched atop the final cliff overhanging Active Pass. The return climb was to us a real test of wind and limb, though apparently of little consequence to him as he skipped lightly up and down. He had a soft heart for stray kittens, and a number of these congregating happily at his doorstep were the first to greet our arrival. Then Jimmy himself would fling open the door and welcome us with courtly grace, quite unspoiled by his years before the mast when he had run off to sea at an early age. Soon he would offer us peppermints on a cracked saucer, and lend us binoculars the better to enjoy the ships and small craft negotiating the swift waters of Active Pass or fishing for its abundant salmon. With a little encouragement he would sing in a resonant tenor voice a number of his own simple songs commemorating the exploits of his island neighbours. For these he had written banjo accompaniments, usually based on snatches of airs which had taken his fancy. Earlier, Jimmy had lived with two older sisters in a substantial house he had built and invited them to share. They came from Scotland for this purpose, but when they showed at first a little disposition to compare local conditions unfavorably with the old land, he silenced them by offering them one-way tickets

home. Eventually they passed on, and one night soon afterwards the house burned down. Jimmy escaped in his pyjamas and nothing else. His false teeth he never bothered to replace, preferring to prepare his food in a form not requiring chewing. His beloved banjo was a more serious loss, threatening his position as island troubadour, but his neighbours rallied to his relief and bought him a new one.

During the several years our place had been vacant, the meadow had become heavily overgrown with alders and broom. For three summers I spent all my available time and energy in grubbing them out with a mattock. Each April saw huge bonfires as I burned the piles from the previous season. I got all the broom out, though I had to spray to destroy the young plants which continued to sprout thickly from seed accumulated in the soil. But by the fourth season the remaining half-acre of alders had grown too large to be dug with a mattock, and I hired a bulldozer to finish the job.

Broom is a very attractive shrub in spring, when it is a mass of bright yellow, or sometimes variegated, flowers. Unfortunately it is so prolific and aggressive that, left to itself, it crowds out everything else. One reward for my laborious clearing was an enhanced display of daffodils, which our predecessor had planted all over the place. These are attractive without being aggressive. A profusion of wild flowers filled the meadow in spring, giving way to lush grass, and then hay, as the season advanced.

We had five happy seasons at La Sonrisa (The Smile), as we called the place, though a small cloud appeared in our sky in the fourth. Between us and ^{the} Slinns lay 90 acres of forest, the logging rights to which had been sold that spring. Our heavenly peace

was broken by the sound of chain-saws and tractors. Worse still, they blocked with skidways the rocky shore along which we had been used to roam unimpeded, beachcombing to our heart's content. My wife had a special eye for curiously shaped pieces of driftwood, which we made into lamps, and for attractive pieces of plank which we made into small tables, benches, and foot-stools, using as legs for some of these the turned posts of a stair bannister discarded when a large old house in the vicinity was torn down. The little bay on which our property abutted was the home of countless rock oysters, which we gathered as a table delicacy from time to time. A less material but more inspiring treat was to look across the Gulf of Georgia on clear days to the majestic north shore mountains, with Mount Garibaldi as their centrepiece.

The fifth season was quiet again, though the shore was still partly blocked. But the following spring, 1963, the real blow fell. That season the ferry service from Vancouver to Mayne was jumped from three or four times weekly to twice daily. The real estate promoters saw their opportunity. Towards the end of March we had a telephone call from one of these, saying his company had bought the 90 acres of forest land which bounded us on the east and south, and the 40 acres of old orchard and woodland across the road to the west, and would like ~~them~~ to have our property to give them a better entrance to the new development and a site for a little community park on our beach. We decided to go to the island and take a look at the situation. One look was enough. There were bulldozers roaring around, dynamite blasts rocking the air, ashes from their fires dropping all over the place.

The charm of La Sonrisa had been its quiet solitude. We loved

the deer which grazed in our meadow, sometimes in threes or fours. One of them even looked through our open window, its curiosity piqued by the whir of my wife's sewing machine. These would now be scared away. We rejoiced in the abundant, sweetly vocal birdlife, encouraged by the ample cover all around us. This, too, was bound to diminish drastically. We sold the property, as we were in no mood to be "developed" according to plan.

The world was a pleasanter place to live in before there were so many people in it. The advantage of automobile transport, for example, is being largely nullified by crowded streets and highways that make driving no pleasure. The quiet seclusion so much needed by contemplative minds is harder and harder to get. Can the spread of knowledge be speeded up, and the opposition of some religions to planned families be overcome, in time to prevent the population explosion being controlled by war and famine? Atomic war is the modern equivalent of Noah's flood.

Soon after we sold our Mayne Island property, my wife announced that we should have a place where I could putter about outdoors, and where we could both have quiet for thinking and writing, and that she was going to use her share of the Mayne proceeds to buy a lot. I felt considerable doubt that we could find a satisfactory lot within easy driving distance of ^{our} Vancouver home at a price we could afford to pay, but went along willingly enough to look. Wonderful to relate, on our very first excursion we drove in half-an-hour to a lot bearing a "For Sale" sign at Deep Cove, which seemed to have everything we desired. A water-front lot, sloping steeply up from the Cove to a crest with a magnificent view up Indian Arm, no houses nearby, as neighbouring lots had

cottages on the beach 150 feet below, hidden from us by trees, and across the road a park still covered with primeval forest.

We thought of it only as a hideaway, and did not plan more than a small cabin for shelter. But here we bumped into zoning regulations which forbade the erection of anything less than a fully equipped cottage with a minimum of 600 square feet ground floor space. We settled for a log cabin of that size, but did not build until the fall, as it took me all summer to clear a site of deadfall, stumps, and brush. The man who bought the ~~x~~ adjoining lot shortly afterwards found it in similar condition, which he described graphically by saying the first time he traversed his lot he never got within six feet of the ground! Meanwhile we spent many happy hours of reading and relaxation during the summer, seated in garden chairs with attached sunshades on a lookout platform I built.

I continued clearing operations and driveway building all winter, as time and weather permitted, and in April had a series of bonfires which would have done credit to Nebuchadnezzar's firemen. Now it is June, 1964, and I finish these memoirs ^{- begun in November, 1961 -} in a comfortable and artistic cottage, with all modern conveniences, in a setting of idyllic beauty and peace, often charmed by that sweet singer, the olive-backed thrush. I must admit that the western crow also finds the environment to his taste, and sometimes punctuates the ecstasy of the thrush with his own unmusical notes, making the most of his limited talent.

Cities are necessary evils, of course. Most people now live in them, but usually seem in a hurry to get somewhere else. Manufacturers of vehicles of transportation take speed as their

main goal, and are literally looking for new worlds to conquer, as they eye the moon and the planets. It is an old ambition. "Let us build us a city and a tower whose top may reach unto heaven." Will our current aspirations end in the same Babel of confusion?

Radio and television have become our main channels of communication. With my natural conservatism, I agreed only after much hesitation to have these introduced into our home, my objections having been to the invasion of privacy and to time-wasting. Experience has shown me that both radio and TV, used judiciously, can be channels of worthwhile education and real enjoyment. On the credit side, too, is the narrowing of the gap between urban and rural opportunities for cultural development. But I still have misgivings about people who turn on these instruments while they are reading or doing other mental work, as to whether they can really train themselves to do two things at the same time effectively or are merely degenerating into scatterbrains. It already seems clear that many of the rising generation become fidgety if they have to study without background noise supplied by radio. It is equally clear that ~~for many families~~ radio and TV have for many families given the final quietus to the art and ^{serious} practice of conversation. Perhaps in time we shall develop habits which strike a reasonable balance in the use of these instruments.

The punning Charles Lamb said, "I could write like Shakespeare if I had a mind to." Actually no sensible person would want to write like Shakespeare, or like anyone else for that matter. Real satisfaction comes only in expressing one's true self, whether it be in writing, painting, handicrafts, or other activities. Even

the enjoyment of good music, so much of which is now available to the discriminating radio listener or record collector, is spiced and enhanced by a little of the do-it-yourself variety, however ill it may compare with professional performance. If quavers not written in the score now sometimes sneak into my singing, my violin, after a silence of forty years, is as sweet-toned as ever, and my fingers relatively free of the stiffness sometimes associated with age. Home-made music is still a pleasant recreation.

Speaking in the evening of his life, Dr. H.M. Tory remarked that he must "keep doing while waiting". I have always enjoyed writing, and perhaps should have kept a diary which might have been useful as source material for future students of social history. These memoirs may to a limited extent fill any gap left by my neglect in that respect. Glancing back again as I finish writing, what are the most striking changes during the 70-odd years I recollect?

First, perhaps, in transportation and communication. In the beginning, forty miles was a long day's drive. Now, all the world is our neighbourhood. In a matter of hours we can go anywhere. At breakfast we hear of the wars, riots, accidents, crimes, as well as of the political and social events of the previous day, everywhere. Whether this is a good thing is another question. Either we harrow up our souls with listening, or we become inured to tales of woe. On the other hand, we have immediate opportunity to help our brother man in need, if we will. And I have already credited radio and TV with linking country and city into essentially one cultural community. The motor car completes this linkage.

The mechanical revolution in agriculture has changed farming

from a way of life to an industry, and shifted population steadily from country to city. Housing developments featuring high-rise apartment complexes, metropolitan planning, and super-highways have become essential concomitants of a swelling, motorized, urban population. Automation is bringing about great increases in productivity and reduction in hours of work. More widespread and specialized education is required to develop industrial skills and to fill increased leisure creatively.

All these changes are moving in an accelerating upward curve, the result of advances in natural science and technology stimulated by war pressures and international competition. War has become potentially so destructive as to be unimaginable. Yet the danger of war has been heightened by the population explosion following upon reduction of infant mortality and progress in the conquest of disease. Racial tensions have been increased by growing disparity in living standards.

Politically, the most striking changes have been the disappearance of colonial empires, the proliferation of small states -- fiercely independent yet clamoring for aid, the spread of Communism, the advent of the cold war with its progeny of neutralism and non-alignment, and the successive appearance of the League of Nations and the United Nations, hopeful but halting steps towards enough world government to keep peace between nations.

Economic nationalism has been a prime obstacle to international cooperation, and inflation has been almost a constant worry. Not even professional economists have been able to harmonize full employment with a stable price level. Statisticians keep moving their reference year forward. Now they use 1949 as a base. If

they had stuck to 1919, or even to 1939, the cost of living index would look so high as to provoke a consumers' rebellion! The geography text-book we used in school in the "nineties" gave the value of the annual exports of Canada as \$80 million. The preliminary estimate of the exports in 1963 is \$7,064 million. A sizable proportion of this fantastic increase must of course be ascribed to the decrease in value of the dollar. The cost of university education has gone up almost as spectacularly, especially in recent years. In our University of Alberta survey of 1941-42, we estimated \$350 per student as a sufficient government subsidy for the immediate future, whereas in January, 1964, President Macdonald of the University of British Columbia reported \$1500 per student as their current subsidy and \$2200 as that required within five years. Against this must be set the steep rise in salary and wage scales. New graduates of Canadian universities are now commonly getting salaries equal to that of a full professor in 1950. The layman may be pardoned for wondering where the wage-price spiral is really getting us.

This brief retrospect discloses a great many challenging problems, but I do not doubt that men will be found able and willing to lead their peoples to reasonable solutions. This has happened in every age.

Religion

In one of the sitting-rooms of the men's residence at Macdonald College in my day there hung a copy of a picture by George Frederick Watts entitled, Sic transit gloria mundi, which made a lasting impression on me. A funeral casket, with trappings

suggesting the nobility of the deceased, had underneath it the inscription, "What I spent I had, what I saved I lost, what I gave I have." This doubtless influenced me towards pragmatism in religion. Forms and trappings have never interested me much. Practical results are what counts. Still, I am confident we shall be judged not so much on what we have done as on the sincerity of our effort~~x~~ to do as well as we could with our gifts and opportunities. And however sincere our effort, in all honesty and humility we are bound to fall back on the promise, "By grace ye are saved through faith; and that not of yourselves: it is the gift of God."

My induction into Christian Science was very gradual. While my wife jumped in fully at the first trial, I for a long time merely dabbled my toes tentatively. My wife sent to me in France a small war-service edition of "Science and Health with Key to the Scriptures," by Mary Baker Eddy. I read it then, and continued to read it at intervals, but had to overcome not only my native conservatism but also the usual prejudices. The Pharisees of old were not unique in their opposition to something that threatened to upset the status quo. Entrenched bureaucracy has always acted, and still acts, that way, generally with impunity, for most of us are content to accept the guidance of authority and follow established practice. This is not to suggest that the Pharisees and their modern counterparts, charged with the preservation of the faith, were and are not sincere. We are nearly all prone to shy away from unfamiliar and radical ideas, like Festus, who said, "Paul, thou art beside thyself; much learning doth make thee mad." Actually the chief novelty of Christian Science is its insistence on taking the teachings of Jesus at their face value. His teachings

were radical in his day, and still seem so.

Biographies of Mrs. Eddy written by hostile critics are preoccupied mainly to ridicule the religion and vilify its founder. Those written by fairminded people with access to all the facts in the files of The Mother Church give a totally different impression. Most convincing are those ~~written~~ by writers who are not Christian Scientists, such as Lyman P. Powell, an Episcopal clergyman who collected and weighed materials for 25 years before starting to write, and William Dana Orcutt, author and publisher, who had the special advantage of seeing Mrs. Eddy often, in connection with the printing of her books. From these impartial biographies there emerges a picture of a woman who "out of weakness was made strong" by her faith in, and growing understanding of, God.

I had of course to face particular difficulties, like Mrs. Eddy's claim to have received the "full and final" revelation of Truth. This seems to clash with the evidence all around us of continual change and gradual increase in knowledge and understanding. Other religions make the same claim, perhaps necessarily so, since any group unconvinced of guidance by the true light would scarcely be worth joining and would not be likely to last long. Mrs. Eddy's claim becomes understandable when it is realized that she was concerned only with the spiritual world and denied the reality of matter in the absolute sense. She says, "God, Spirit, being all, nothing is matter" (Science and Health, p. 113). Thus the real man, made in the image of God, is necessarily spiritual. Though our spiritual identity appears during our earthly sojourn to be localized in the body, actually this is not so. Our thoughts, the expression of our real selves, are free to roam at

will. "As he thinketh in his heart, so is he." Then but one thing is needful, to set our thoughts in order.

I shared, too, the common opinion that Christian Science was more a system of mental healing than a religion. I came to see that better health is only one of the signs following an improved understanding of God. Another, more important, sign is the regeneration of character. There can be no doubt that the systematic daily study of the Bible and Science and Health, which is part of the practice of Christian Science, is a powerful tool in this process. Since much of my working life was devoted to the study of natural science and an agency for improving the material well-being of mankind, I should add that I found no conflict between this and the study of Christian Science to promote spiritual development. Well-ordered material conditions should improve the atmosphere for spiritual growth.

When we finally achieve the full recognition of our spiritual identity, things which seem to divide us here will disappear. Race, colour, language, sex, pertain only to the material bodies we discard. Creeds will be obsolete, for we shall know as we are known. Of the qualities we exhibit here, only those pertaining to character can we expect to take with us, and these we must be prepared to go on cultivating, rooting out imperfections, till only the perfect image of God is left.

As we grow older we prize time more, because it is becoming a scarce commodity. Later still, time begins to lose its meaning, as we approach the state in which there is only the eternal, ever-present NOW. Our chief concern becomes so to act that, as we cross the bar, we may hope to say reverently in the words of the Master, "I have finished the work which Thou gavest me to do."

CURRICULUM VITAE

Born in Montreal, Canada, February 7, 1889, son of John and Elizabeth Brown Newton.

Married July 31, 1914, to Emma Florence Read, daughter of Rev. Francis Winter and Annie Williams Read.

Degrees

B.S.A., McGill University, 1912.

M.S., University of Minnesota, 1921.

Ph.D., University of Minnesota, 1923.

D.Sc., University of Alberta, 1933.

Honorary Degrees

Sc.D., Cambridge, 1948; Manitoba, 1948; Minnesota, 1954.

LL.D., Saskatchewan, 1948; Alberta, 1950.

Fellow of the Royal Society of Canada, 1930; President of Biological Section, 1944-45.

Fellow, Agricultural Institute of Canada, 1938; President, 1942-43.

Professional Experience

1912-13 District Agriculturist, Macdonald College.

1913-14 Chief Assistant Cerealists, Dominion Experimental Farms.

1914-15 Director of Agricultural Instruction, New Brunswick.

1915-19 Canadian Field Artillery, wounded July 20, 1916;
Military Cross, 1917; Captain.

1919-20 Assistant Professor of Field Husbandry, Univ. of Alberta.

1920-22 On leave from University of Alberta to hold Shevlin Fellowship at University of Minnesota.

1922-24 Professor of Plant Biochemistry, University of Alberta.

1924-32 Professor of Plant Biochemistry and Head of Department of Field Crops, University of Alberta.

1928-32 Acting Director, Division of Biology and Agriculture, National Research Council.

1932-41 Director of foregoing. (On leave, 1940-41).

- 1940-41 Dean, Faculty of Agriculture, University of Alberta.
- 1941-50 President, University of Alberta, and Director, Research Council of Alberta.
- 1950-51 Continued as Director, Research Council of Alberta.
- 1950--- President Emeritus, University of Alberta.

Special Commissions

- 1926 Gave series of lectures to Graduate School, University of California.
- 1928 Commissioned by C.S.T.A. and International Education Board to survey and report on post-graduate instruction and research in agriculture in Canada.
- 1929 Commissioned by National Research Council to survey and report on feasibility of marketing wheat by protein content in U.S.A. and Europe.
- 1935 Gave Commemoration Address on research at fiftieth anniversary of Minnesota Agricultural Experiment Station.
- 1941-50 Member, National Research Council of Canada.
- 1942-43 Chairman, Enquiry Committee, CBC, which initiated the programme, "Citizens' Forum".
- 1944 One of Founders and first Governors, Arctic Institute of North America.
- 1947-52 Member, Board of Trustees, National Gallery of Canada.
- 1951 Commissioned by Board of Regents, Memorial University of Newfoundland, to make survey and recommend long-range programme.
- 1950-52 Directed survey and edited report on agricultural research in Canada, for Agricultural Institute of Canada.

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